Route Strategy Initial Overview Report

London to Leeds

May 2023

national highways


50

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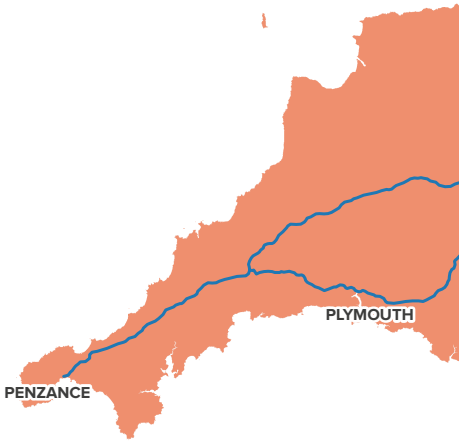
- Western Gateway

There are 17 routes relating to route strategies across our strategic road network (SRN). To take better account of our customers' end-to-end journeys, we have split some of the longer routes into sub-strategies across 20 reports.




BERWICK-UPON-TWEED
NEWCASTLE UPON TYNE
CARLISLE
MIDDLESBROUGH
YORK
LEEDS
PRESTON
KINGSTON UPON HULL
LIVERPOOL
MANCHESTER
SHEFFIELD
LINCOLN
STOKE-ON-TRENT
NOTTINGHAM
DERBY
GRANTHAM
NORWICH
SHREWSBURY
WOLVERHAMPTON
LEICESTER
PETERBOROUGH
BIRMINGHAM
COVENTRY
CAMBRIDGE
BEDFORD
IPSWICH
HEREFORD
MILTON KEYNES
LUTON
CHELTENHAM
COLCHESTER
OXFORD
SWINDON
LONDON
SOUTHEND-ON-SEA
BRISTOL
READING
DOVER
SOUTHAMPTON
HASTINGS
BRIGHTON
PORTSMOUTH
EXETER
BOURNEMOUTH

Executive summary

Introduction

Our strategic road network (SRN) is the backbone of the country. More than 4,500 miles of motorways and major A-roads connect people, build communities, create opportunities and help the nation thrive. To plan for the future, we take a long-term view of our network and the trends that could impact transport, road travel, and personal and commercial mobility. Route strategies are at the centre of this dynamic future planning of our network, informing how we operate, maintain and renew our network. This report is the Initial overview report for the London to Leeds route and summarises the outcomes of the route strategy. The report builds on the first two rounds of route strategies in 2015 and 2017. It aims to be more forward looking, integrated and collaborative, while being dynamic enough to respond to the future needs of our customers and neighbours.

In this report, we detail the route context, current constraints on the route, and opportunities for improved connections with local roads and rail links. We set out intelligence-led route objectives aligned with the Department for Transport's (DfT's) six strategic objectives. These objectives aim to ensure the route can serve its function, while mitigating the identified constraints and challenges. They conclude with locations for further consideration to achieve the route objectives. The route objectives and locations for further consideration will be presented to the Department for Transport to inform future decision-making about investment planning through the Road investment strategy (RIS). It should be recognised that not all aspirations outlined in this report can be funded or delivered.

DFT'S SIX STRATEGIC OBJECTIVES FOR THE STRATEGIC ROAD NETWORK

- Improving safety for all
- Network performance
- Improved environmental outcomes
- Growing the economy
- Managing and planning the SRN for the future
- A technology-enabled network

For clarity, this document does not:

- identify committed schemes for delivery as part of future RIS periods. This will be part of the wider RIS setting process
- commit to the delivery of local plans or economic growth developments mentioned
- guarantee funding for any locations identified for further studying to understand the challenges and issues in more detail
- preclude the inclusion of other locations for consideration in the light of other evidence or imperatives

Customers and neighbours

Engagement with our customers and neighbours has been central to developing our route strategies. We have already gathered a wealth of evidence from the previous rounds of route strategies and through our ongoing monitoring of road condition and performance.

Our performance is monitored through the National Highways' Performance Framework. This Performance Framework was established at the start of the second road period (2020 – 2025) and sets out National Highways' commitments to 2025. It is outlined in the RIS2 *Delivery plan (2020 - 2025)*[1]. We will continue this monitoring approach into the third road period (2025 – 2030).

To add to this existing evidence, we carried out a detailed engagement programme for this round of route strategies to understand the current and future needs of those using and living alongside the SRN.

The route

The London to Leeds route is a north–south route in eastern England, including approximately 171 miles of the A1 or A1(M) and approximately 42 miles of the M11. It runs from the M25 north of London, through the east of England and the East Midlands, to West Yorkshire where the M1 joins the A1(M). The route passes through Essex, Hertfordshire, Bedfordshire, Cambridgeshire, Northamptonshire, Rutland, Lincolnshire, Nottinghamshire, South Yorkshire, West Yorkshire and North Yorkshire.

This route strategy report can be read alongside other interacting route strategy reports, including:

- London Orbital and M23
- Felixstowe to Midlands
- London to Scotland East (North)

Challenges and issues

We have identified challenges and issues of those using the route and living alongside it. These correspond to the DfT's six strategic objectives, which are the strategic objectives for RIS3. They were agreed by National Highways and DfT, and are set out in the RIS3 *Planning ahead*[2] document in December 2021.

Improving safety for all

- Some sections of the route have 2-star iRAP safety ratings
- There are locations with concentrations of collisions where people were killed or seriously injured
- Some sections of the route have high proportions of collisions involving motorcyclists

Network performance

- Current congestion on parts of the route at peak times
- Reliability issues on parts of the route, with concerns about the impact of incidents and diversionary routes
- Seasonal peak delays on certain parts of the route
- Forecast growth in traffic, leading to increased congestion in a number of areas

1 Highways England (2020) *Delivery Plan: 2020–2025.* https://nationalhighways.co.uk/delivery-plan/

2 Department for Transport (December 2021) *Planning ahead for the Strategic Road Network: Developing the third Road Investment Strategy.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1045938/planning-ahead-for-the-strategic-road-network-developing-the-third-road-investment-strategy.pdf

Improved environmental outcomes

- Maintaining and protecting Areas of Outstanding Natural Beauty (AONBs), areas with environmental designations and cultural heritage
- Minimising greenhouse gas emissions
- Building resilience to future climate change
- Receptors which may experience higher noise levels within 300 metres, particularly on certain sections of the A1(M)
- Receptors which may be more likely to experience adverse air quality impacts within 100 metres on certain parts of the route
- Severance impact at certain locations

Growing the economy

- The route's role in long-distance and other strategic journeys, particularly for freight
- Supporting the many housing and employment growth areas along the route
- Supporting strategic access to the Cambridge area knowledge economy
- The heavily SRN-reliant regional economy in the East Midlands
- Concentrations of deprivation at a number of locations along the route

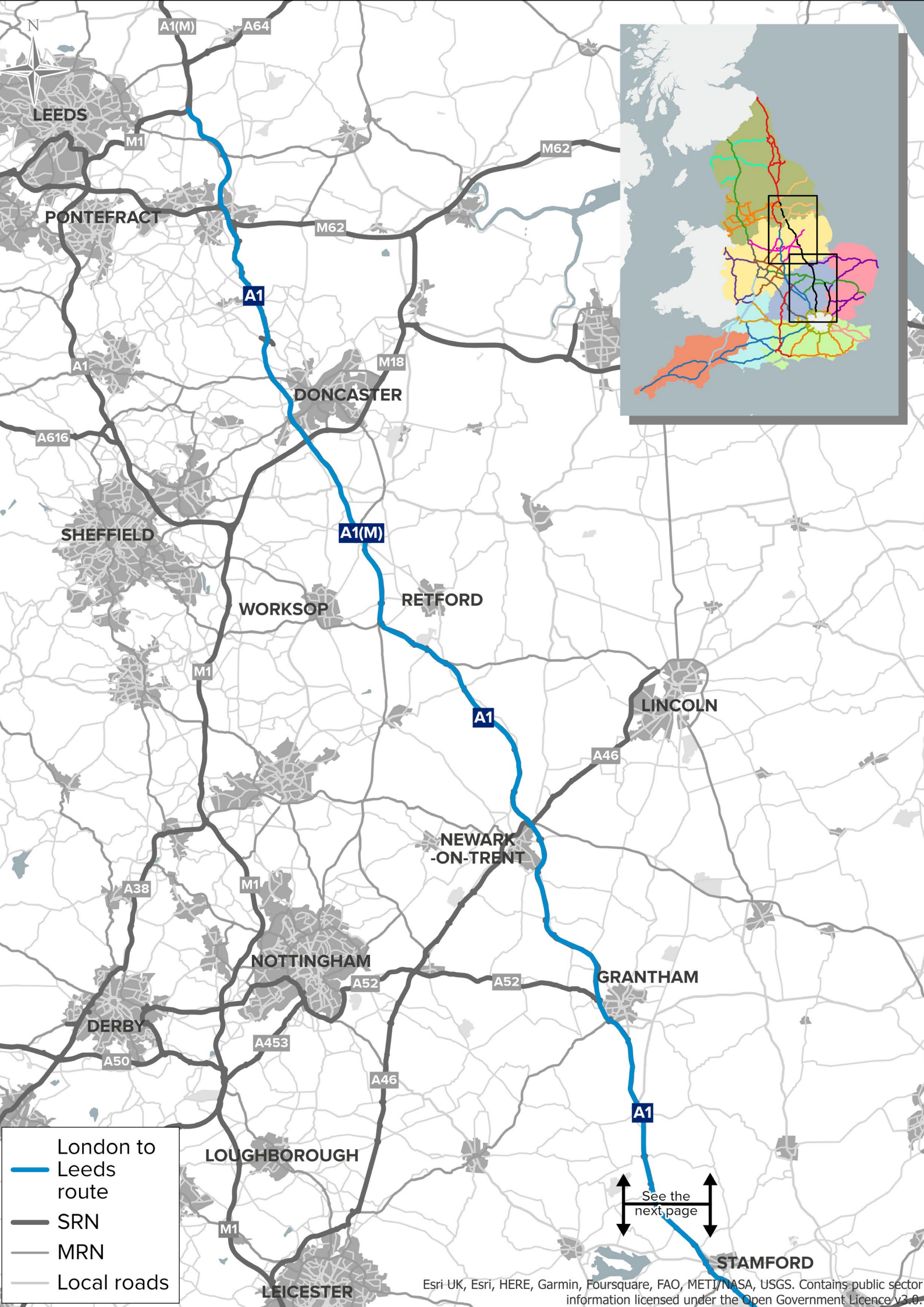
Managing and planning the SRN for the future

- Contributing toward the national target of 96.2% or more of carriageway being in good condition
- Maintaining the good condition of the strategic road network's geotechnical assets
- Ensuring that drainage assets are maintained so that their good structural and service conditions can be upheld

A technology-enabled network

- Information for road users (before and during the journey)
- Provision of charging facilities for electric vehicles


London
Biggleswade
A1
The NORTH
Peterborough
Sandy
A1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A1(M)
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See the next page
London to Leeds route
SRN
MRN
Local roads
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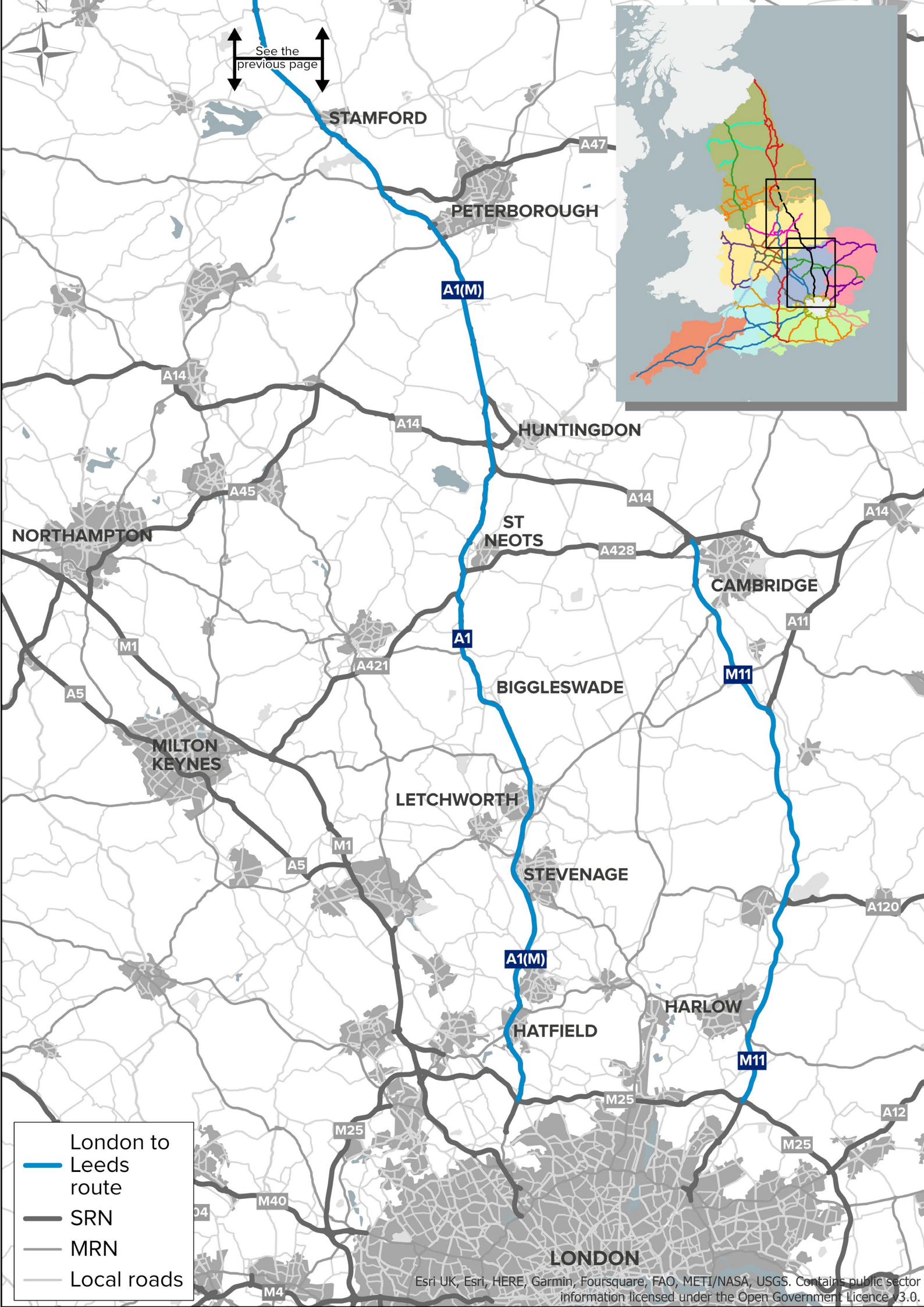
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STAMFORD
A47
PETERBOROUGH
A1(M)
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A14
HUNTINGDON
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A14
NORTHAMPTON
ST NEOTS
A428
CAMBRIDGE
A11
M1
A1
A421
M11
BIGGLESWADE
A5
MILTON KEYNES
LETCHWORTH
M1
A5
STEVENAGE
A120
A1(M)
HARLOW
HATFIELD
M11
M25
A12
M25
M25
M40
LONDON
M4
London to Leeds route
SRN
MRN
Local roads
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Initial route objectives

We want to provide safer and more reliable journeys for all those who use or live alongside our network, and support the route in achieving the economic and housing growth ambitions of surrounding areas. Based on our engagement and data analysis, we have defined a set of objectives for the route. The table below shows the route objectives and how they contribute to the DfT's six strategic objectives for the SRN as a whole.

		DfT's strategic objectives for our network					
Ref.	**Route objective**	**Improving safety for all**	**Network performance**	**Improved environmental outcomes**	**Growing the economy**	**Managing and planning the SRN for the future**	**A technology-enabled network**
A	**Improve safety for all:** provide safe journeys on the A1, A1(M) and M11, to benefit road users and local communities	✓					
B	**Support reliable connectivity for the UK:** support reliable strategic connectivity for the UK for people and goods between the north, East Midlands, eastern and south-east England (including their ports and airports), promoting the UK and regional economies		✓		✓		✓
C	**Support the efficient movement of goods and people:** improve the reliability of freight and coach journeys along the A1, A1(M) and M11, alongside improved parking and driver welfare facilities to support both the local, regional and national economy		✓		✓		✓
D	**Support sustainable economic and housing growth:** support sustainable economic and housing growth, particularly in growth areas and other economic clusters in Yorkshire, Newark, Grantham, Peterborough, Cambridgeshire, Hertfordshire and Essex		✓		✓		
E	**Be a better neighbour:** be a better neighbour by safeguarding the environment and reducing the impact of adverse air quality, noise and severance on local communities along the A1, A1(M) and M11, in areas such as Sandy, Beeston and Seddington and around Doncaster			✓			
F	**Better informed drivers:** improve communications to better inform drivers and improve their end-to-end journey experience for journeys involving or crossing the A1, A1(M) and M11, to allow drivers to make informed route choices		✓				✓

Next steps

The 20 route strategy Initial overview reports will combine with other related evidence to inform the broader *SRN initial report* as part of the RIS process for the third road period (2025-2030). The *SRN initial report* includes an assessment of the current state of the network and user needs from it, potential maintenance and enhancement priorities, and future developmental needs and prospects. DfT will consult on this *SRN initial report*[3], which will serve to inform the RIS and *Strategic business plan*[4].

We will finalise the Route strategy overview reports following feedback on the publication of these Initial overview reports. They will be used as a forward planning tool by National Highways to help identify investment opportunities for enhancements, as well as to support decisions around operating and maintaining our network. Providing an understanding of the strategies for each route will also help inform the decisions taken by our interested parties. These finalised Route strategy reports will also serve to inform the RIS and S*trategic business plan*.

3 National Highways (2023) *SRN initial report*. https://nationalhighways.co.uk/futureroads
4 National Highways' *Strategic business plan* will be published later in road period 2 (2020-2025)

Helping the nation to thrive

01 Introduction

Our strategic road network (SRN) is the backbone of the country. More than 4,500 miles of motorways and major A-roads connect people, build communities, create opportunities and help the nation thrive.

Our network provides safe, high-speed connections that:

- enable businesses to transport products and services
- provide access to jobs and suppliers
- facilitate trade and investment
- support commercial and housing development that is integrated with local roads and other modes of transport

The SRN also supports leisure journeys, connecting people and places, and will play a central role in delivering the social, economic and environmental needs of the nation, especially as we seek to reduce the carbon footprint of our network.

To plan for the future, we are taking a long-term view of our network and the trends that could impact transport, road travel and personal and commercial mobility. We consider factors ranging from climate change and low-carbon transport to increasing automation, digital technologies and changing travel preferences. Route strategies are at the centre of this dynamic future planning of our network. They build on our *Connecting the country: Our long-term strategic plan to 2050*[5] that sets out our vision and plan for the SRN until 2050, aligning with the government's *Ten point plan for a green industrial revolution*[6].

Purpose of route strategies

Our route strategies are based on 17 routes across England, with some split into two sub-strategies where this better reflects our customers' end-to-end journeys. There are 20 reports in total. We outline the objectives of each route along with the constraints faced and the current and predicted future performance based on analysis and widespread engagement with our customers and neighbours.
Our customers and neighbours include:

- local authorities, devolved administrations, and Sub-national Transport Bodies
- other transport network operators (including local highway authorities, Network Rail, port and airport operators)
- operational partners (including, but not limited to, the emergency services)
- road users
- local communities
- other relevant interested parties with a significant stake in the long-term development of the network
- Members of Parliament

We also provide a list of locations for further consideration to inform investment planning across National Highways and for the Road investment strategy (RIS). We develop and publish these route strategies to:

- help us develop an understanding of the future state of the routes
- identify the locations for further consideration to inform our investment programmes and guide our vision

5 National Highways (2023) *Connecting the country: Our long-term strategic plan to 2050.* https://nationalhighways.co.uk/connectingthecountry
6 HM Government (November 2020) *The Ten Point Plan for a Green Industrial Revolution: Building back better, supporting green jobs, and accelerating our path to net zero.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf

- give a practical tool to National Highways as a whole, while supporting external interested parties who anchor their infrastructure planning and investment around our network
- help ensure that all investment delivers safer and more reliable journeys for our customers and neighbours

For clarity, this document does not:

- identify committed schemes for delivery as part of future RIS periods. This will be part of the wider RIS setting process
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- guarantee funding for any locations identified for further studying to understand the challenges and issues in more detail
- preclude the inclusion of other locations for consideration in the light of other evidence or imperatives

Route strategy reports

These Route strategy initial overview reports have informed the *SRN initial report*[7] that sets out our vision and proposed priorities for the third road period (2025-2030) and beyond.

The final Route strategy reports will be published by the end of the RIS period, which covers 2020-2025. The three delivery phases of route strategies are shown in Figure 1.

Purpose of the report

This report is the route strategy for the London to Leeds route. In this report, we detail the route context, current constraints on the route, and opportunities for improved connections with local roads and rail links. We set out intelligence-led route objectives aligned with the DfT's six strategic objectives. These objectives aim to ensure the route can serve its function, while mitigating the identified constraints and challenges. They conclude with locations for further consideration to achieve the route objectives.

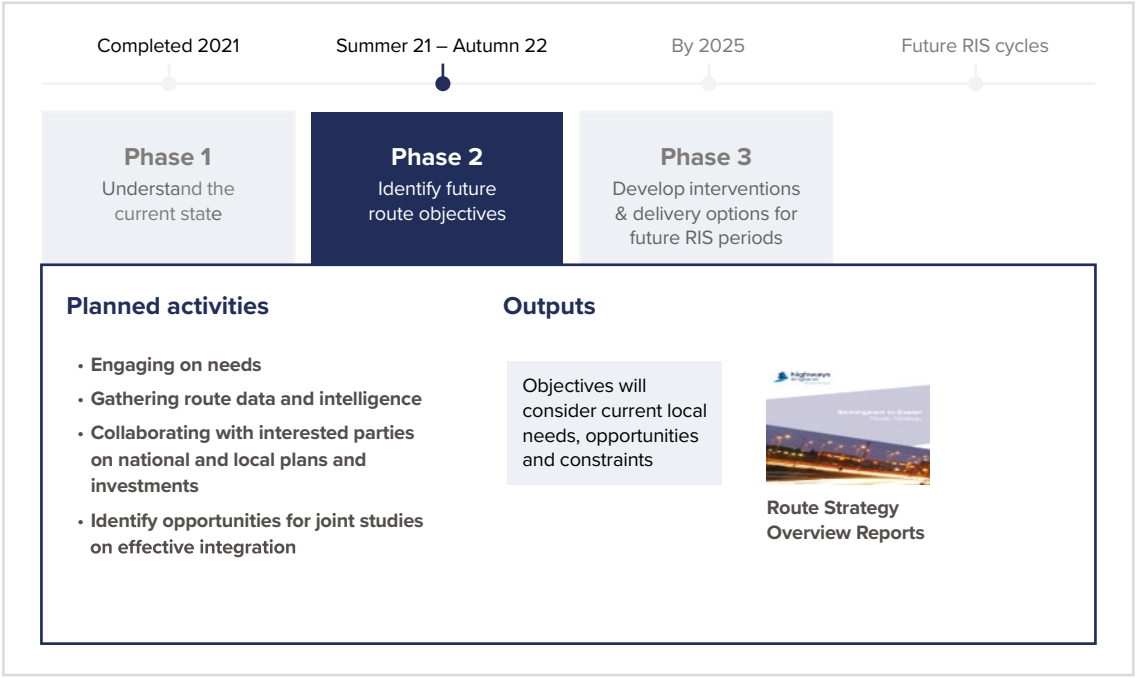


Figure 1: The route strategies delivery phases

7 National Highways (2023) *SRN initial report.* https://nationalhighways.co.uk/futureroads

The route objectives and locations for further consideration will be presented to DfT to inform future decision-making about investment planning through the RIS. It should be recognised that not all aspirations outlined in this report can be funded or delivered.

The development cycle for the third Road Investment Strategy (RIS3)

Preparing route strategies is a requirement under the Infrastructure Act as well as a National Highways Licence requirement. The Licence sets out the Secretary of State for Transport's statutory directions and guidance to National Highways. It states that we must periodically prepare and publish route strategies covering the whole of the network to maintain an understanding of how the network is performing, while identifying any potential challenges. Each set of route strategies informs each RIS outlined by government, as well as supporting decision-making for the ongoing management and development of the network.

Route strategies are one of the key steps of research required by DfT to inform the setting of a RIS. Following the setting of RIS1 and RIS2, which covered the first road period (2015-2020) and second road period (2020-2025), we are now in our third round of route strategy planning informing RIS3 for the third road period (2025-2030) and beyond.

Looking across the whole of the SRN, our route strategies form one of the most important parts of the 'research' phase of the RIS3 development cycle. These strategies explore the current performance and future pressures on every stretch of the SRN, covering matters such as safety, reliability, congestion, environmental impacts, and local ambitions for economic and housing growth. Through the extensive engagement we have undertaken to inform the strategies, we provide insight to DfT and government into local, regional and national priorities for the SRN to support investment decisions for RIS3 and beyond. Grounded in evidence, the strategies identify the immediate needs of the network as well as highlighting longer-term issues or potential opportunities as shown in Figure 2.

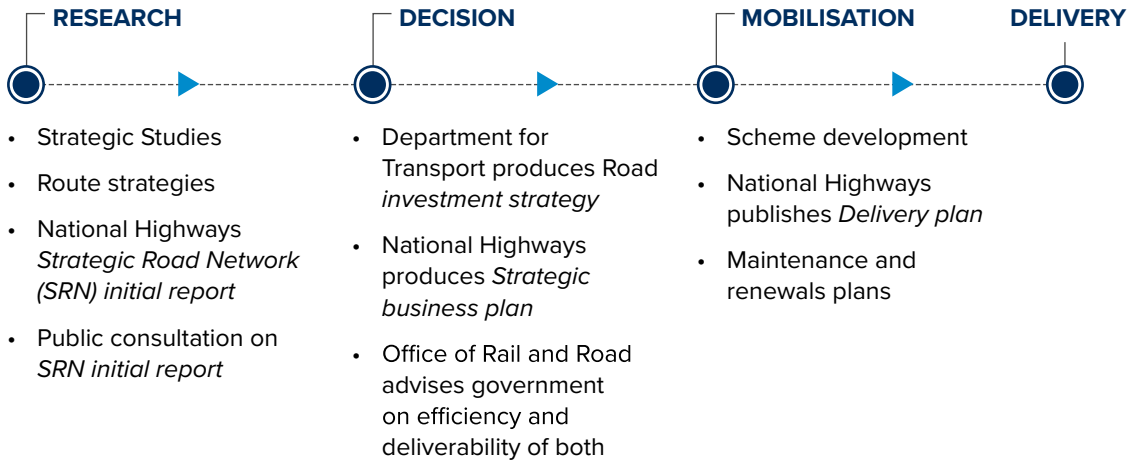


Figure 2: The RIS development cycle

We have developed a revised approach to route strategies, building on past versions, to ensure they respond to the current and future needs of our customers and neighbours. The approach for route strategies is outlined in our approach document *Vision for route strategies: Planning for the future of our roads*[8].

Our ambitions for route strategies, summarised in Figure 3, are to be forward-looking, widely supported, and integrated with other networks and modes of travel. They will consider the implications of local development plans and government ambitions and be dynamic to respond to the changing needs of our customers and neighbours in how they use and interact with our network. Such needs may evolve as a result of how people use our network due to COVID-19, environment considerations, or the need to support strategic connections and integrated solutions that connect locations, all of which will have an influence on the scale and type of future investments. We will work with interested parties to ensure that the route strategies are widely supported and integrated into regional and local strategies.

Engagement with customers and neighbours

Engagement with customers and neighbours has been central to developing our route strategies. We have already gathered a wealth of evidence from the previous rounds of route strategies and through our ongoing monitoring of road condition and performance.

Building on engagement to date, we have worked with Sub-national Transport Bodies, Office of Rail and Road, Department for Transport, and Transport Focus to ensure a diverse range of people and their views are represented. This has allowed us to further improve our understanding of our customers and neighbours' requirements, helping us identify locations for further consideration to improve the SRN.

We will continue to evolve this engagement process for future cycles of route strategies. We used a range of methods to gather information from customers and neighbours throughout the route strategies' evidence collection period, which ran from August to December 2021 (Figure 7). These included round tables, workshops, and an online feedback form and we designed the approach to be more inclusive by engaging with, and learning from, a wide range of interested parties.

Thinking about how the SRN integrates with the surrounding rail and road network, including parts of the major road network (MRN) and local roads, we designed our engagement around the following objectives:

- To understand the current role of the SRN and how it could better support the aspirations of customers and neighbours of the future
- To gather views and seek evidence on current and future issues, challenges and opportunities – both local and strategic

We have also gained an in-depth understanding of what our road users want nationally from Transport Focus' *Strategic roads user survey 2021/22*[9] into road users' priorities for improvements to journeys on the SRN. This research was based on focus groups and interviews with all types of road users across the country, alongside a survey of more than 5,000 drivers. It asked for users' views on key issues, such as sustainability and electric vehicles, and the stress of driving on the SRN.

From this research, Transport Focus identified that the majority of road users want the focus of investment to be on keeping National Highways' existing roads in good order before building new ones. Their top priority for improvement to journeys on the SRN is road surface quality, followed by the safer design and upkeep of roads.

8 Highways England (2021) *Vision for route strategies: Planning for the future of our roads.* https://nationalhighways.co.uk/media/w0vhd3un/vision-for-route-strategies.pdf
9 Transport Focus (July 2022) *Strategic Roads User Survey - 2021/22 summary report.* https://www.transportfocus.org.uk/publication/strategic-roads-user-survey-2021-22-summary-report/

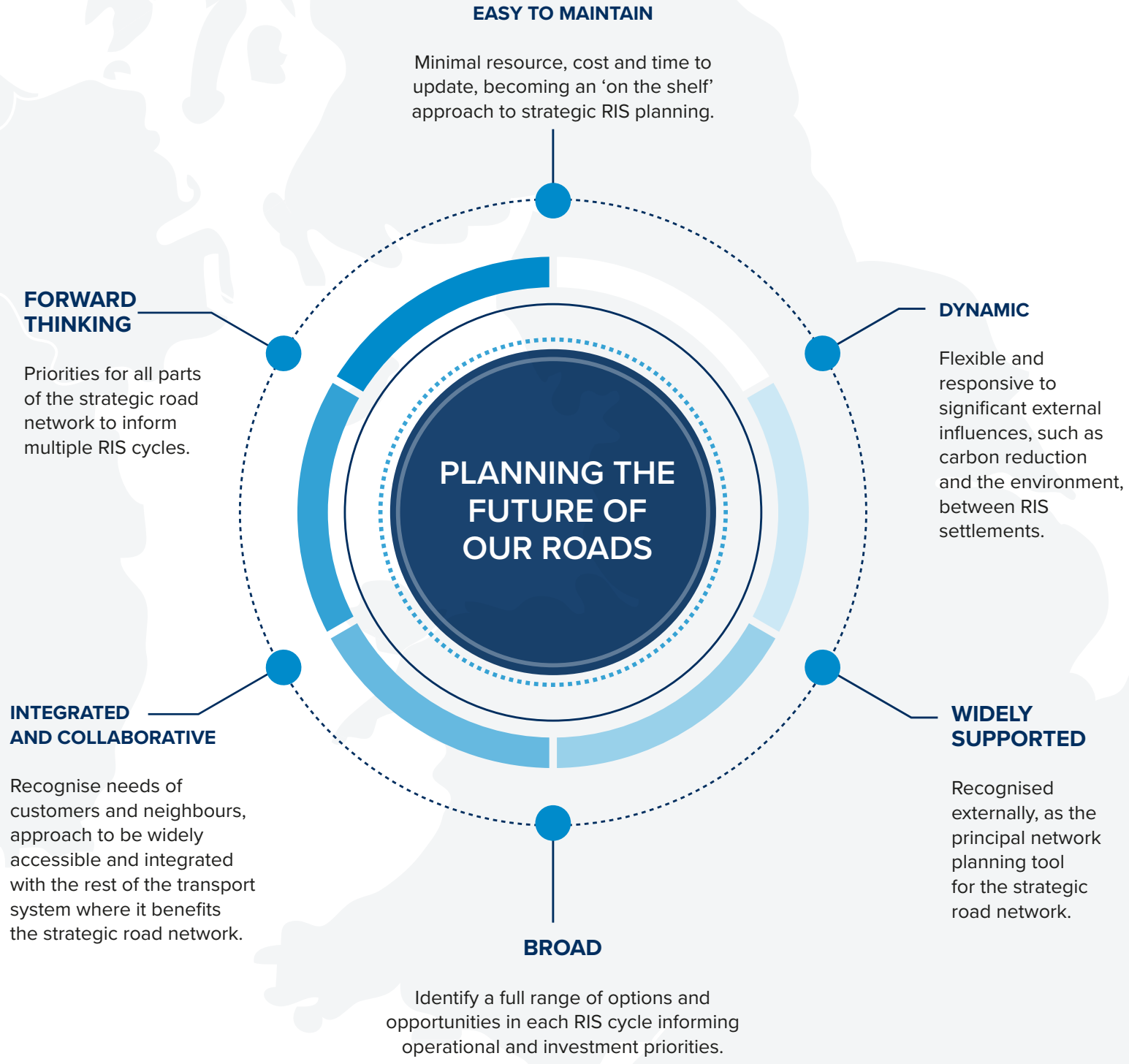


Figure 3: Our ambition for route strategies

Users also want to see better management of roadworks and of unplanned delays, such as incidents or breakdowns, and better information about unplanned disruptions to journeys. Walkers, cyclists and horse riders using the SRN highlighted concerns about the speed of traffic and want action on lighting and litter. This research will be used by Transport Focus to make recommendations about what National Highways should be required to deliver during the third road period (2025-2030).

The findings from the Transport Focus survey align with findings from our route strategies engagement with customers and neighbours across the SRN.

Engagement during workshops with interested parties (shown in Figure 6) identified the following national priorities:

- Better driver education aimed at teaching road users about new technology
- Deeper consideration of environmental constraints at the earliest stage of planning, and consideration for key environmental issues such as biodiversity, air quality and sustainable transport
- A resilient and reliable SRN to support economic growth
- Better integration between the SRN and local road network to improve journey times
- Greater support for the freight industry in terms of:
  - the future of low emission vehicles and commercial fleet
  - the impact of congestion on productivity, fuel cost, driver breaks, lorry park locations and delivery times
- Greater collaboration and early engagement with interested parties, and greater alignment between network operators, including consideration for joint funding opportunities

In addition, feedback on the SRN provided by communities and neighbours via the online tool, showed similar national priorities. The breakdown of the 1,700 responses we received via the online feedback tool are shown in Figure 4 and Figure 5.

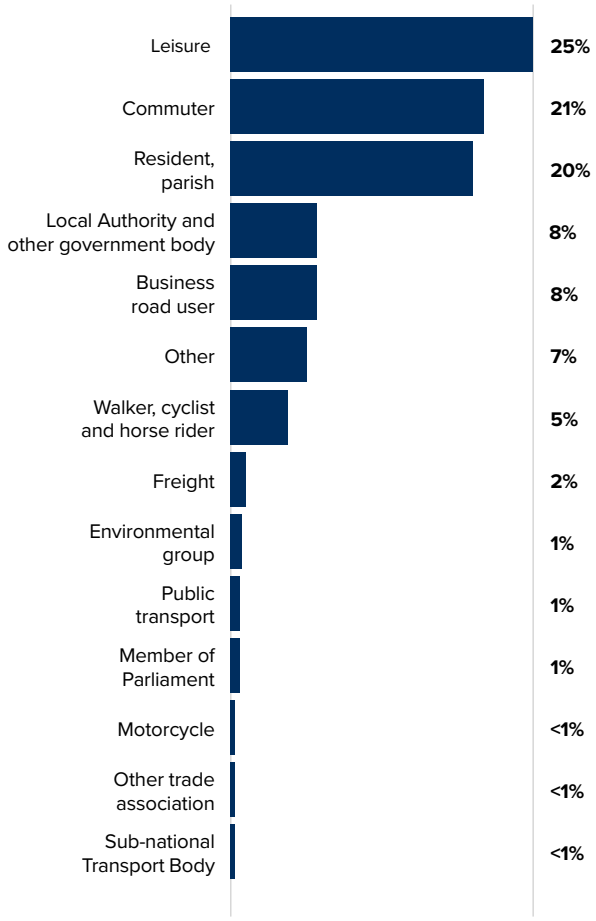


Figure 4: All responses to online tool by participant type

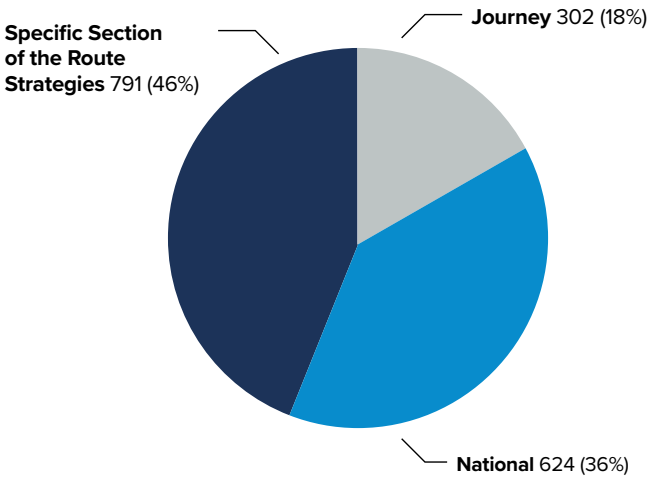


Figure 5: All response to online tool by type

A breakdown of the national issues and general feedback raised is shown in Figure 8, which highlights that, in terms of the issues identified:

- 26% were related to safety
- 23% were related to congestion
- 28% were related to the environment or carbon

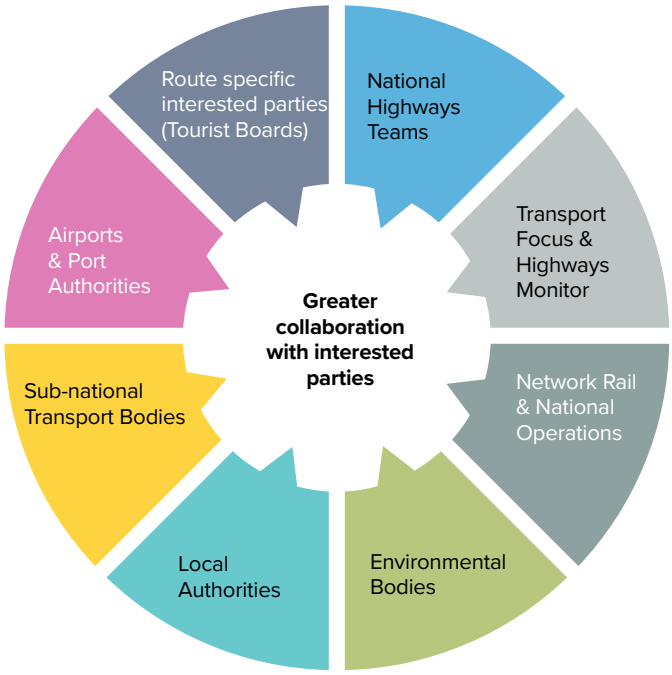


Figure 6: Interested parties involved in the route strategy engagement

Figure 7: Timeline of engagement with interested parties

DfT's strategic objectives for the strategic road network

DfT have published six objectives for the SRN. These are the strategic objectives for RIS3 (2025-2030) that have been agreed between National Highways and DfT and were set out in the *RIS3 Planning ahead*[10] document in December 2021. They cover safety, network performance, environment, economy, management and planning for the future and technology.

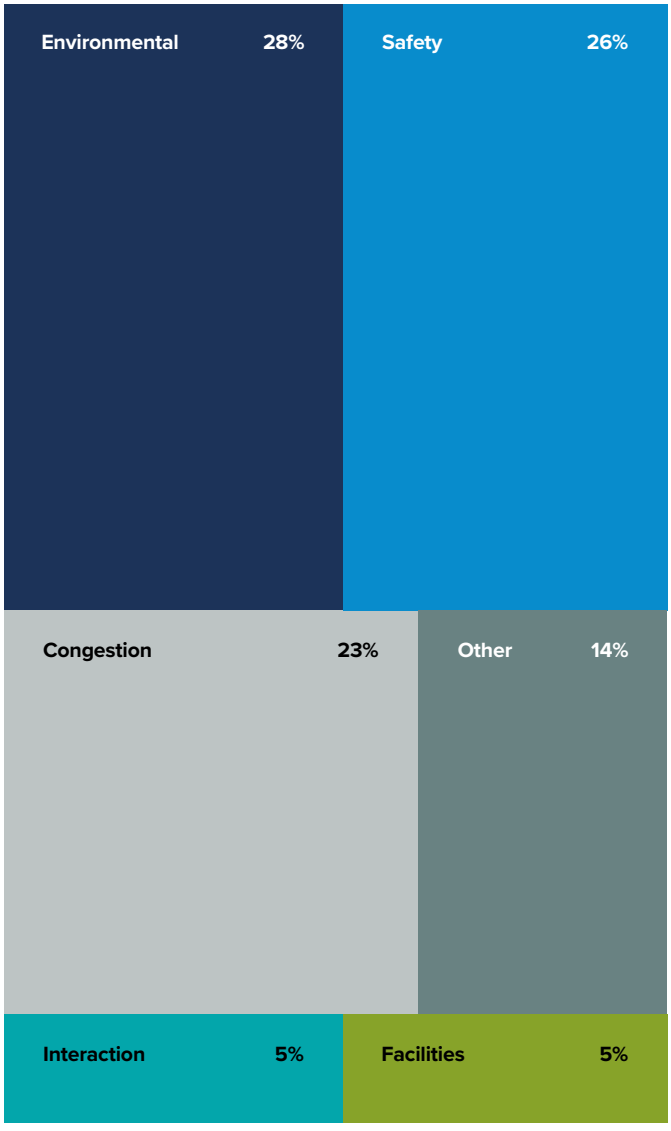


Figure 8: National themes from feedback through the online tool

10 Department for Transport (December 2021) *Planning ahead for the Strategic Road Network: Developing the third Road Investment Strategy.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1045938/planning-ahead-for-the-strategic-road-network-developing-the-third-road-investment-strategy.pdf

All our route strategies need to show how they contribute to the delivery of the DfT's six strategic objectives for our network, to ensure we meet future challenges. These help us create relevant, meaningful and effective strategies that address evolving concerns. Such concerns include decarbonisation, ecology, the need for new homes and the desire for a better-connected country.

This aligns with the Infrastructure Act 2015, where National Highways has a statutory obligation to have regard to the effect of its functions on the environment, and the safety of users of highways.

At a national level, National Highways has existing commitments and ambitions to contribute to the DfT strategic objectives, as outlined below. The strategies for each route are aligned with these. They include:

i) Improving safety for all

- Our safety approach

ii) Network performance

- Expectations over COVID-19 and travel demand
- Our ambition for supporting freight, logistics and the coach industry
- Our ambition for supporting end-to-end journeys for a variety of modes
- Our approach to trunking and de-trunking for SRN

iii) Improved environmental outcomes

- *Net zero highways: Our 2030 / 2040 / 2050 plan*[11]
- Our plan for net zero carbon travel on our roads covering emissions from the vehicles using the SRN
- Our approach to improved environmental outcomes

DFT'S SIX STRATEGIC OBJECTIVES FOR THE STRATEGIC ROAD NETWORK

- Improving safety for all
- Network performance
- Improved environmental outcomes
- Growing the economy
- Managing and planning the SRN for the future
- A technology-enabled network

iv) Growing the economy

- Our contribution to growing the economy and levelling up
- Our approach to spatial planning

v) Managing and planning the SRN of the future

- Our approach to asset management

vi) A technology-enabled network

- Our ambition for digital roads

11 National Highways (2021) *Net zero highways: our 2030 / 2040 / 2050 plan* https://nationalhighways.co.uk/media/eispcjem/net-zero-highways-our-2030-2040-2050-plan.pdf

IMPROVING SAFETY FOR ALL

OUR SAFETY APPROACH: We are committed to reducing the number of road users killed or seriously injured on the strategic road network, by 50% (from the 2005-2009 baseline) by the end of 2025, with a long-term vision to eliminate harm arising from use of the SRN. We recognise:

- safety is National Highways' top priority. We believe that everyone who travels or works on our roads should get home safe and well
- billions of miles are travelled on the SRN each year, with the vast majority of these safe and reliable journeys
- our roads are some of the safest in the world, but we know there is more we can do. Every death or serious injury on our roads is a tragedy and we are committed to creating the safest roads in the world

NETWORK PERFORMANCE

EXPECTATIONS OVER COVID-19 AND TRAVEL DEMAND: COVID-19 has had the biggest single-year impact on road traffic since records began in 1949. But car traffic on the SRN is now back to approximately 95% of pre-pandemic levels.

At the time of writing, while the onset of COVID-19 and the rapid rise in homeworking initially decreased demand for both public and private transport, the greatest impact has been on public transport, with private vehicle travel the first mode to rebound. Homeworking has not noticeably reduced demand for the SRN. An estimated 43% of UK jobs can be done entirely from home, but nearly two-fifths of businesses expect 75% of their workforce to eventually return to their normal place of work.

It is unclear if the scale of homeworking will continue or how it will affect long-term travel demand. For the short-term, transport flow data has generally shown that traffic peaks have become flatter but broader, with traffic more evenly spread across the day, suggesting some behaviour change.

Continued hybrid working could see a redistribution of demand, flattening the daily morning and afternoon peaks, and instead creating a mid-week peak.

The pandemic has also brought wider uncertainties, such as whether these loosened physical ties to employment locations could see increases in suburban living, as workers that are more 'knowledge-based' than 'location based' take advantage of greater geographic mobility across the country.

Changes in leisure trends caused by the pandemic could also have implications for the SRN, such as the changing demand for high street retail or choices around domestic versus overseas holiday-making. Such needs may evolve, all of which will have an influence on the scale and type of future investments.

SUPPORTING FREIGHT, LOGISTICS AND THE COACH INDUSTRY: We continue to collaborate with our freight and logistics customers to better understand how the SRN can support their operations, and work with wider government in the delivery of their *Future of freight plan*[12]. We recognise that lorry parking and facilities are key to enabling freight and logistics businesses to operate safely and efficiently. A lack of parking and good quality facilities impacts the recruitment and retention of drivers into a sector that is crucial to the country's economy. We are keen to play our part in ensuring good quality facilities are in the right places and that we support the sector in recruiting and retaining a diverse pool of drivers.

Our ambition is to improve lorry parking by:

- intervening where the market is not meeting the demand for lorry parking (areas of high demand with insufficient facilities)
- working with operators to improve the quality of existing facilities
- ensuring our major projects consider the needs of lorry drivers

12 Department for Transport (June 2022) *Future of Freight: a long-term plan.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1085917/future-of-freight-plan.pdf

In addition to supporting lorry parking, we remain focused on:

- reducing congestion on the SRN, which affects the speed, reliability and cost of logistics, as well as driver safety when journeys exceed regulated driving time
- improving the suitability of alternative routes and diversions off the SRN
- supporting the industry in achieving net zero carbon emissions by facilitating the adoption of alternative fuels linked to parking facilities
- ensuring resilience on key freight routes, such as between ports, airports, wharves and rail freight interchanges
- increased data sharing on incidents, roadworks and diversions
- understanding changes in how our freight and logistics customers use the SRN so we can continue to provide the best possible service

IMPROVING END-TO-END JOURNEYS FOR A VARIETY OF MODES: The SRN plays an important role in supporting a wide range of customer journeys by different modes of transport. We are exploring how to support customers' end-to-end journeys by creating travel choices that deliver our target of net zero carbon customer journeys by 2050. We recognise our role in supporting an integrated transport network that allows our current and future customers to re-route, re-time, re-mode and reduce their journeys, especially at peak times and during major disruption.

Through understanding National Highways' role in influencing and improving travel, we will identify how to support customers utilise the right mode for the right journey. By working closely with operators, we will ensure our network supports bus and coach services.

And through the development of active travel networks we can help deliver health and wider social benefits.

Our focus is on delivering net-zero customer journeys by 2050 through behaviour change towards sustainable travel by:

- understanding travel behaviours to identify customer needs for end-to-end journeys, supporting the development of a travel demand management strategy
- ensuring our customers have the information they need to make the travel choices that are right for them
- improving integration of different modes of travel by working with key interested parties to deliver a range of active travel and public transport interventions
- using behaviour change and techniques to manage future travel demand and minimise disruption from major works
- continuously improving our offer for walkers, cyclists and horse riders

SRN TRUNKING/DETRUNKING: For RIS2 (2020-2025), we were asked to explore changes to the SRN to ensure the network aligns with RIS2 strategic priorities, reflected in the *Strategic business plan*. This plan relates to improving connections between main urban centres, to international gateways, to peripheral regions (for levelling up) and strategic cross-border routes (to strengthen union connectivity). It included a commitment to explore potential asset ownership changes between ourselves and local highway authorities that could be implemented no earlier than the start of RIS3 (2025-2030). DfT have produced a shortlist of 18 trunking and two de-trunking candidates, identified following the draft RIS2 public consultation in 2018, for us to assess desirability and viability of asset transfer. De-trunking is the process of returning a National Highways road to the local highway authority control and visa versa for trunking.

These candidates were put forward by a range of external interested parties, including local authorities, Local Enterprise Partnerships and Chambers of Commerce, then shortlisted by DfT. There is ongoing work to review the assessment evidence and recommendations, after which government ministers are expected to announce the candidates that will progress to the detailed development stage, which will be led by National Highways and incorporated in the forward study programme and wider RIS3 process.

IMPROVED ENVIRONMENTAL OUTCOMES

NET ZERO HIGHWAYS: NATIONAL HIGHWAYS' 2030/2040/2050 PLAN[13].
We are committed to being a Net Zero Carbon Company by 2050 (2040 for Maintenance and Construction emissions).

We published our ambitious net zero carbon plan in July 2021. It details how we will achieve net zero emissions for: our corporate space by 2030, our maintenance and construction emissions by 2040, and road user emissions by 2050. We're keen to support a sustainable future and know that road travel is vital to enabling a thriving net zero economy. Our plan strengthens the decarbonisation of the transport sector, which remains the biggest emitting sector of greenhouse gases in the country.

We also need to consider how the SRN will be resilient to climate change. Our route strategies will need to recognise that the schemes we construct are likely to be subjected to changes to the climate, such as flooding.

Our route strategies demonstrate how we will continue to connect the country and ensure that the SRN is environmentally sustainable and resilient to climate change. This includes understanding the right schemes and options that support integration across different modes of travel, improve the SRN's capacity through digital roads, and deliver broader environmental enhancements.

This will change the way we work both internally and with our supply chain and wider interested parties.

As part of our net zero commitment, we need to consider the contribution our schemes make to sustainable development. We are adopting the PAS2080 Carbon Management in Infrastructure Standard that will help us invest only where we can achieve our zero carbon goals. Guided by the PAS2080 Standard, we will use an investment hierarchy where we favour opportunities to deliver whole life value without undertaking construction. We will demonstrate that we have considered all interventions during our planning stages and that every effort is made to avoid negative impacts and maximise environmental benefits throughout the lifecycles of schemes. We will also work with government and the private sector to set out a clear proposition by 2023 for electric vehicle charging on our network. This will cover both customer need and the infrastructure required to deliver this.

More than ever we need to support the Government's wider plans for decarbonising transport. The SRN plays a pivotal role in supporting the transition to zero carbon cars, vans and heavy goods vehicles (HGVs), but we also recognise that we need to better integrate with other modes of transport too, including public transport and active travel.

NET ZERO CARBON TRAVEL ON OUR ROADS COVERING EMISSIONS FROM THE VEHICLES USING THE STRATEGIC ROAD NETWORK:
We have set an ambition for all of our customers to be travelling using net zero transport by 2050, in line with the UK Climate Change Act. Many of the actions that will deliver this ambition are out of our direct control, but that does not mean we cannot play our part. Our priorities are to help roll-out solutions to decarbonise HGVs and support the uptake of electric cars and vans. We will also continue our work on integrating the SRN with other transport modes, while working to improve the efficiency of the network.

13 National Highways (2021) *Net zero highways: our 2030 / 2040 / 2050 plan.* https://nationalhighways.co.uk/media/eispcjem/net-zero-highways-our-2030-2040-2050-plan.pdf

Our actions relating to reducing emissions from road users of our network include:

- publishing our proposed approach to zero carbon HGV trials by the end of 2022
- publishing a blueprint for electric vehicle charging services on our roads by 2023
- integrating a strong modal shift programme in the third road period (2025-2030), building on our work to date

IMPROVED ENVIRONMENTAL OUTCOMES: We know there's a requirement to balance people's need to travel on our roads with doing all we can to protect and improve the environment. That means we will continue to consider a wider range of environmental factors in our future planning, such as improving biodiversity, protecting ancient woodlands, reducing pollution in Air Quality Management Areas, and protecting Sites of Special Scientific Interest. These will form part of our considerations during our early planning. In response to these emerging issues, our latest route strategies take a balanced view on expanding the future capacity of the SRN. We now seek to develop strategies that produce balanced investment plans with schemes of different magnitudes, delivering across multiple objectives: safety, journey time improvements, network resilience, maintenance and renewals, technology, environmental enhancement, and integration with more sustainable transport modes. The outcome will be an SRN that supports the economy but also delivers on the wider environmental challenges.

GROWING THE ECONOMY

GROWING THE ECONOMY AND LEVELLING UP: The SRN is a vital part of England's – and the UK's – transport infrastructure. It facilitates the movement of people and goods nationally, regionally and locally through connections to the major road network and other transport infrastructure. The Government's levelling up agenda places emphasis on ensuring no community is left behind, particularly as we recover from the COVID-19 pandemic. With such a vital role in supporting the economy and facilitating connectivity - enabling access to jobs and homes, international gateways and supporting road-reliant sectors – National Highways and the SRN have a role to play in supporting the levelling up agenda and the wider aim of economic prosperity.

The Government is committed to strengthening transport connections across the UK. Sir Peter Hendy's *Union connectivity review*[14] was published in late 2021. The Review recommends the creation of UKNET, a strategic transport network spanning the entire United Kingdom based on a series of principal transport corridors between key urban and economic centres, including international gateways. The findings of this report have been considered in the context of our route strategies and will be a key objective for our cross-border routes and the roads connecting to important ports.

Additionally, the SRN plays a critical role in enabling international connectivity and trade by providing reliable and resilient access routes to global markets via the country's network of international ports, airports and the Channel Tunnel. Enhancing these links and supporting these gateway locations to thrive, including maximising the opportunities of Freeports, is a key part of National Highways' role in supporting the national economy.

14 Hendy, P. (November 2021) *Union Connectivity Review: Final Report.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1036027/union-connectivity-review-final-report.pdf

SPATIAL PLANNING: We recognise that businesses operate from the location that best suits their business requirements in terms of access to customers, the supply chain and employees. Location is equally critical to decision-making in the residential market, both for the house builder and the potential purchaser or occupier. In enabling new employment spaces and homes to be developed, at National Highways we engage fully and positively as a statutory consultee in the planning system.

This is in line with our statutory responsibilities as set out in our Licence, and in support of wider government policy and regulation. Our focus is on securing sustainable development, managing cumulative impacts of strategic growth, and minimising the potential for any negative impacts on the SRN.

MANAGING AND PLANNING THE SRN FOR THE FUTURE

We recognise that asset management is our core business. It is the service we provide to maintain, operate, and enhance the SRN safely, reliably and effectively for all our customers. We manage more than 4,500 miles of road, over 20,000 structures and 12 road tunnels, as well as drainage, earthworks, and technology equipment. We recognise that our customers rely on our roads to travel approximately 95 billion miles every year, and our work helps unlock housing and employment sites across the country. One of our main priorities is managing these assets effectively and efficiently, to deliver the outcomes our customers and interested parties want.

We have adopted an asset management approach in order to align our strategy and planning activities to create, maintain, operate, and renew all of the assets that make up our network. Asset management links all our activities and supports our three imperatives: safety, customer service and delivery.

We know that good asset management is about understanding our customers and interested parties, identifying what they need and then using our assets effectively to deliver the right level of service. We are working to understand what satisfies our customers, and what we can do to influence this.

Our vision is to create an approach and establish ways of working that make sure all our asset management activity is aligned by following the key principles set out in our asset management policy. We work across the whole asset lifecycle, understanding that asset decisions we make may affect future service provision. This means that we are planning and accounting for emerging and evolving challenges around customer expectation, climate change and new technology. Since the beginning of the second road period we have continued on our journey to increase our asset management maturity, and our organisational objectives have developed significantly in light of COVID-19 and the Government's carbon plans.

A TECHNOLOGY-ENABLED NETWORK

DIGITAL ROADS: Our ambition for digital roads is to continue to harness data, technology and connectivity of people to places and communities and networks to improve the way the SRN is designed, built, operated and used. Our recently published *Digital roads strategy* (September 2021)[15] sets out how we will harness data, technology and connectivity to improve the way the SRN is designed, built, operated and used. This will also support our ambitions to achieve net zero carbon on the SRN. We have established three themes: Digital design and construction, digital operations and digital for customer. These themes will continue to frame our vision towards 2030 and beyond, increasing connectivity, automation and data.

15 National Highways (2021) *Digital Roads.* https://nationalhighways.co.uk/our-work/digital-data-and-technology/digital-roads/

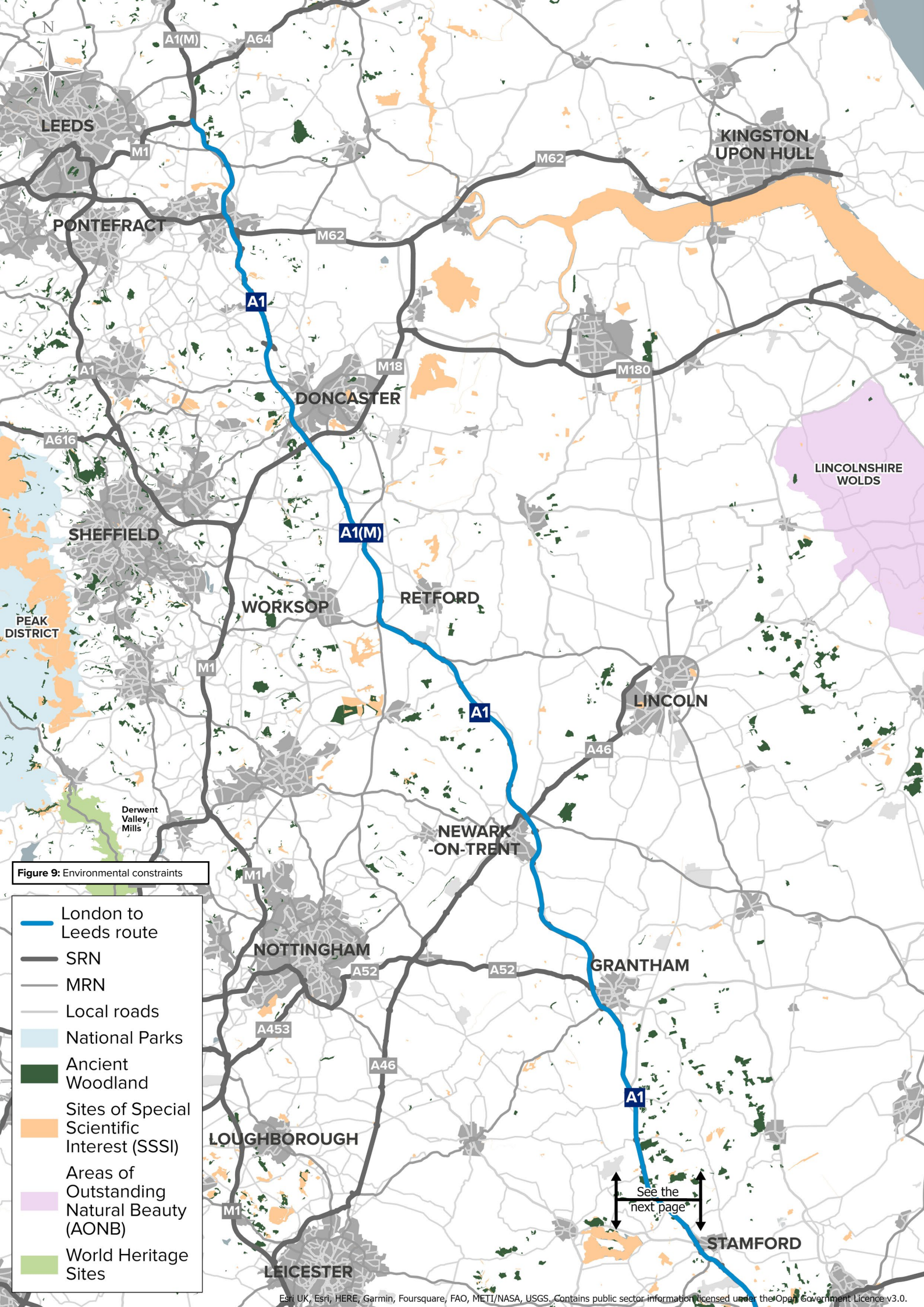
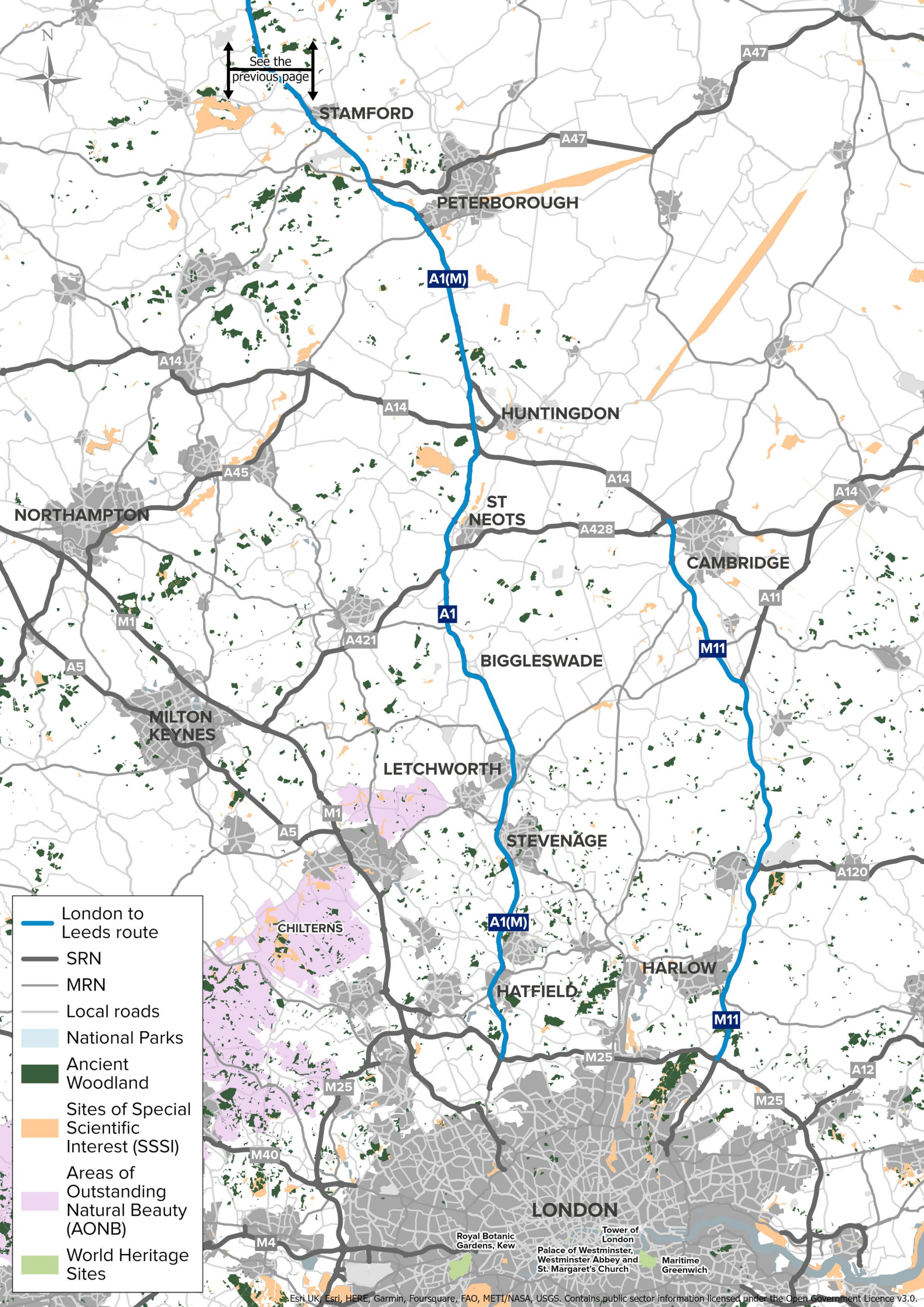


Figure 9: Environmental constraints



Our network connects the country

02 The route

The London to Leeds route is a north-south route in eastern England, including approximately 171 miles of the A1 or A1(M) and approximately 42 miles of the M11. It runs from the M25 north of London, through the east of England and the East Midlands, to West Yorkshire where the M1 joins the A1(M). The route passes through Essex, Hertfordshire, Bedfordshire, Cambridgeshire, Northamptonshire, Rutland, Lincolnshire, Nottinghamshire, South Yorkshire, West Yorkshire and North Yorkshire.

The route, as shown in Figure 10, provides two radial corridors in and out of London, and links with a number of east–west strategic routes along its length. The A1(M) continues towards Tyneside as part of the London to Scotland East (North) route.

The route is part of an important strategic link between Scotland, the north of England, the East Midlands and the south. It has a key role in the movement of goods and strategic traffic. The economies it serves along its length include highway-dependent sectors in the east of England and East Midlands, the important economic centres of South and West Yorkshire, and the growing high-tech and knowledge economy around Cambridge.

The A1(M) and A1 from London towards Huntingdon and Peterborough connect economic centres along the corridor, such as Hatfield and Stevenage, with each other and with London. The route also serves growth areas and has strategic east-west connections with the A421, A428 and A14. Between Baldock and Huntingdon the A1 also provides local and property access. From the growing city of Peterborough towards South Yorkshire, the A1 is important to the region's economy, particularly for distribution and the nationally-important agri-tech sector. Connecting with other key strategic road network and major road network roads such as the A47, A52, A17, A46 and A57, it links the East Midlands and eastern England to the rest of the UK and to international gateways such as the Humber and Haven ports. It also connects the towns of Stamford, Grantham and Newark, and provides local access to villages and properties along parts of the route.

Onwards through South Yorkshire and along the cusp of West and North Yorkshire, the A1(M) and A1 provide a strategic north–south route, linking with the parallel M1 and continuing into North Yorkshire. There are key connections with the M18 and M62. The route, together with these motorways, supports trans-Pennine and regional journeys and provides connectivity for towns such as Doncaster and Pontefract.

The M11, running between London and Cambridge, is an integral part of the route for strategic north–south movements. In conjunction with the A14 (part of the Felixstowe to Midlands route) it carries more heavy goods vehicle traffic than the parallel A1 between London and Huntingdon. It particularly serves journeys to and from East London, the Thames Gateway, Kent, and their ports. At a regional level, the M11 connects London, Stansted Airport and Cambridge with each other and with much of eastern England, including the Fens, the Brecks, West Suffolk and Norfolk. It supports the nationally-important growth of the Cambridge sub-region and its knowledge-based economy, as well as its cluster of visitor attractions. It also provides strategic road access to the growing towns of Harlow and Bishop's Stortford, and connects with other routes such as the A120.

This route strategy is based on the road network as of the start of the second road period (2020-2025). During the first and second road periods (2015-2025), new schemes were opened to traffic at Elkesley (on the A1 in Nottinghamshire) and between Cambridge and Huntingdon on the A14 (which connects with the M11 and A1). We recognise that some of the journeys on this route are part of longer journeys and therefore need to be considered in conjunction with strategies on other routes.

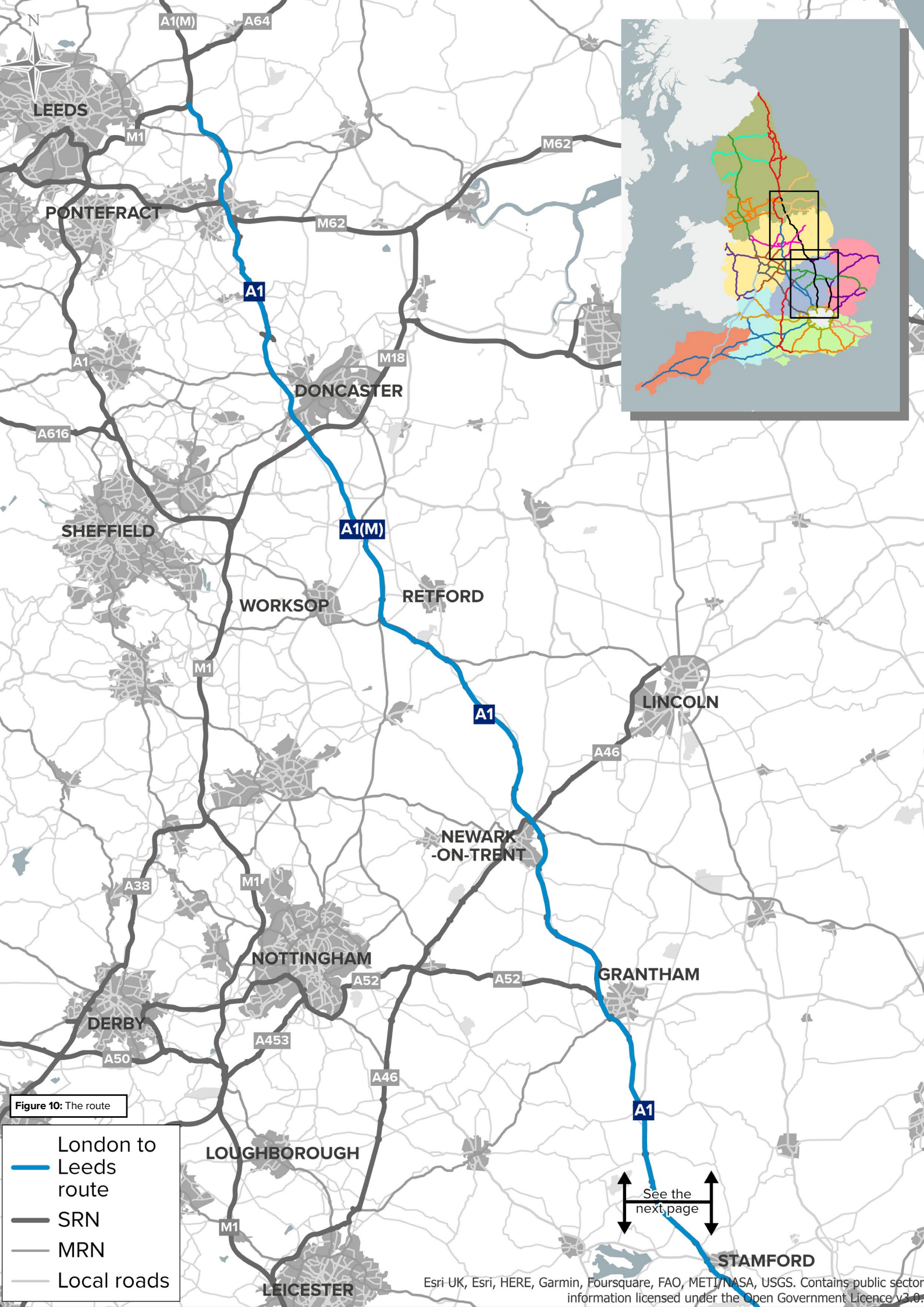
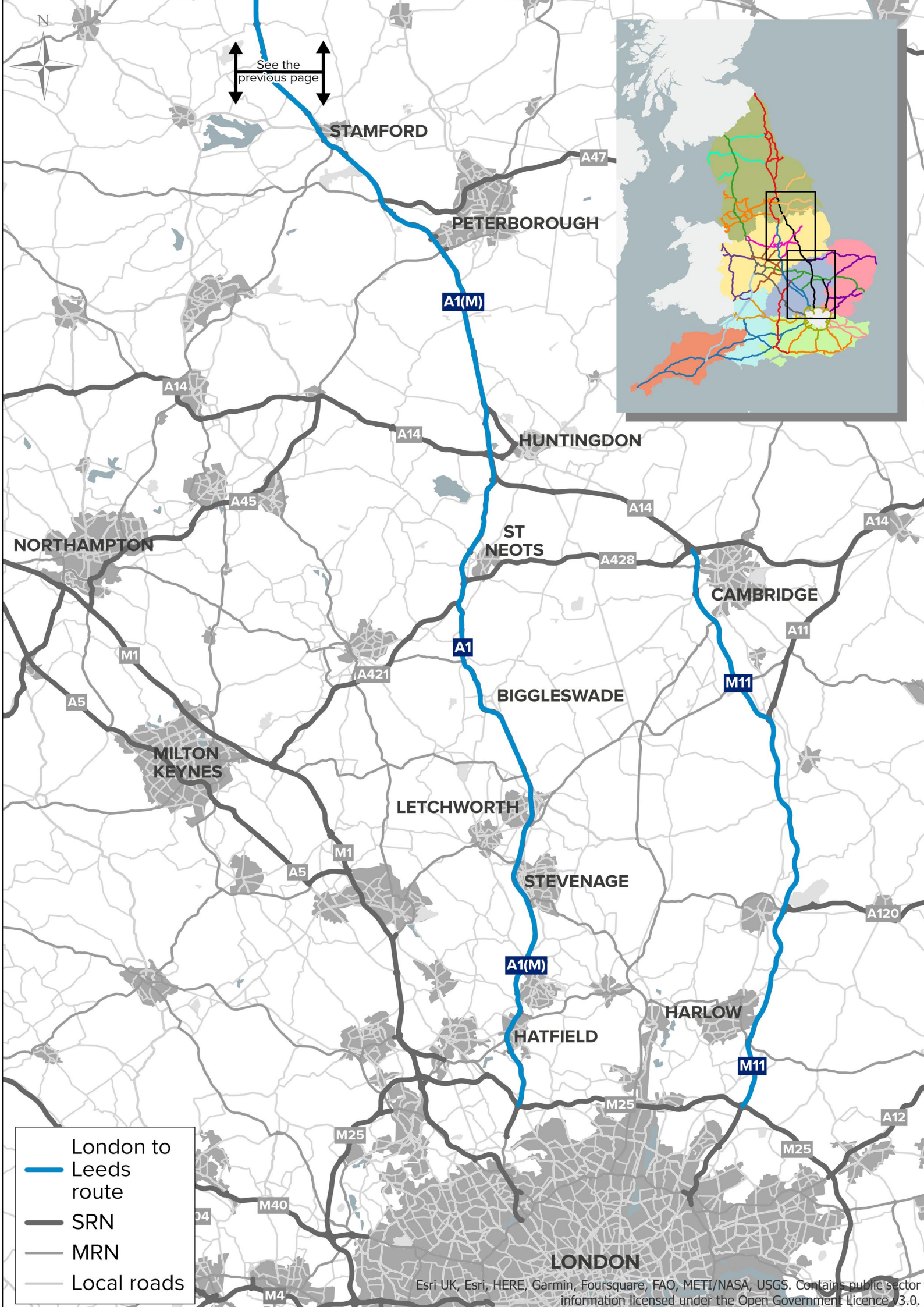


Figure 10: The route


N
See the previous page
STAMFORD
A47
PETERBOROUGH
A1(M)
A14
A14
HUNTINGDON
A45
A14
A14
NORTHAMPTON
ST NEOTS
A428
CAMBRIDGE
A11
M1
A421
A1
M11
BIGGLESWADE
A5
MILTON KEYNES
LETCHWORTH
M1
A5
STEVENAGE
A120
A1(M)
HARLOW
HATFIELD
M11
M25
A12
M25
M25
M40
LONDON
M4
London to Leeds route
SRN
MRN
Local roads
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Listening to your feedback

03 Engagement with customers and neighbours

Engagement with customers and neighbours has been central to developing our route strategies. The development of the route strategies is one of the key steps of initial research in the development of the Road investment strategy (RIS). This engagement, together with data analysis, will inform RIS3 (2025 to 2030) and beyond. It builds on a wealth of evidence from previous route strategies and our ongoing monitoring of road condition and performance.

Engagement with customers and neighbours along the London to Leeds route

Early engagement with the Department for Transport (DfT), Office of Rail and Road, Transport Focus, Midlands Connect, Transport for the North, England's Economic Heartland and Transport East (Sub-national Transport Bodies) and Network Rail shaped our engagement with customers and neighbours along the London to Leeds route. We gathered evidence from a cross-section of Members of Parliament (MPs), interested parties, road users and communities at a route level to understand their needs for the future. This built on engagement that had taken place with national interested parties, such as environmental groups, organisations representing road users, business organisations and transport campaigning groups. This engagement has informed the development of the route objectives.

Engagement took place through:

MP roundtables: MPs were invited to a regional roundtable with the Roads Minister to share their views on priorities for our customers and neighbours within their constituencies.

Regional workshops: As part of a programme of workshops with interested parties at a national and regional level, we invited interested parties to workshops on route strategies for the London to Leeds route in late 2021. Attendees included local authorities, airports and port authorities, transport operators, and other key route-based interested parties, such as major businesses.

We designed the workshops to seek views on both current and future challenges and opportunities for the strategic road network (SRN), in relation to the DfT's six strategic objectives. Views were sought on how the routes interacted with the major road network (MRN), local roads, public transport, walking and cycling, and links to the wider SRN. Interested parties also provided insight into key growth proposals and locations along the route, including committed and emerging economic and housing growth and infrastructure proposals. Interested parties shared their own data, studies and observations of the route area.

Route strategies online feedback form: Local interested parties, road users and communities were invited to give their feedback on specific locations on motorways and A-roads and routes, and general comments on the road network, through the route strategies online feedback form. For the London to Leeds route, regional interested parties were invited to workshops or to use the online form to share their views and feedback.

The information gathered was a mix of evidence, studies and personal experience. All the evidence gathered through these engagement methods was considered alongside route analysis and data to inform the development of the route objectives. The evidence was supplemented by route-based information from Transport Focus' *Strategic Road User Survey*[16] to gain an understanding of the breadth of feedback.

Key themes from engagement

We have drawn out the common themes that emerged from our engagement with our customers and neighbours on the London to Leeds route to inform our route objectives. The themes have been aligned with the DfT's six strategic objectives:

i) Views on: Improving safety for all

- Safety issues on non-motorway sections of the A1. These included concerns over direct access, at-grade junctions, breaks in the central reservation and slip road configurations
- The impact of large numbers of heavy goods vehicles and their overtaking behaviour was raised, as it potentially affected safety as well as network performance

ii) Views on: Network performance

- Current and anticipated delay locations, such as the A1(M) Doncaster bypass and the A1 at Black Cat, Sandy and Biggleswade. There was concern that these affect journey times and reliability
- There were concerns about overall reliability and resilience along the route
- Incidents on the A1 were raised as having a detrimental impact on other roads
- The level of heavy goods vehicle parking and freight facilities was raised as being insufficient to meet the freight sector's needs
- Inconsistent standards between sections of the A1 were raised. Opportunities were seen to upgrade some sections to the standards seen on others
- There were concerns that congestion and incidents on the A1 also affect journeys that cross the A1 at its junctions
- There was support for the proposed A46 Newark Bypass scheme, part of RIS2

iii) Views on: Improved environmental outcomes

- Concerns over local environmental impacts in particular locations, including locations along the A1 with homes alongside
- The need to respond to net zero carbon and environmental ambitions was raised

iv) Views on: Growing the economy

- The importance of the route for supporting national and regional economies
- The importance of long-distance freight movements using the route, including movements to and from East Coast and Channel ports
- Growth in housing, logistics centres and other developments along the route
- The performance of the A1 between Huntingdon and Baldock. There was concern that this affected the region's growth aspirations as well as network performance
- Current and anticipated congestion and severance at M11 Junction 9 (Bishop's Stortford and Stansted Airport). Future congestion and delay would need a strategic approach to most effectively support the full range of anticipated developments
- The opportunity for the SRN to integrate better with other transport modes and land-use planning decisions. A holistic approach was sought to planning land use and transport networks

16 Transport Focus Strategic roads user survey website: https://www.transportfocus.org.uk/insight/strategic-roads-user-survey/

v) Views on: Managing and planning the SRN for the future

- The opportunity to reduce maintenance-related disruption, by designing assets so that maintenance is less disruptive and replacement is required less frequently
- The value of a coordinated approach to road closures between strategic and local highway authorities, to minimise the impacts of disruptive work on SRN assets

vi) Views on: Technology-enabled network

- A need to work with local highway authorities on improved communications, as this would enable road users to plan their journeys better
- The need to consider future technology requirements, including electric vehicle charging

Engagement quotes from customers and neighbours

A1 and A1(M):

Figure 11: Quotes from customers and neighbours

"High growth in demand for warehousing across the region"

(Route strategies engagement)

"Achieve greater standard of route consistency"

(Route strategies engagement)

"At-grade junctions and breaks in the central reservation. Slow-moving vehicles on two-lane sections"

(Route strategies engagement)

"High projected growth around Biggleswade development – could be supported by SRN improvements"

(Route strategies engagement)

"A1 south of Huntingdon is a barrier to the region's growth aspirations and the overall performance of the network"

(Route strategies engagement)

"The road was busy but we had no hold ups and we had a clear run"

(A1 May 2022) (Transport Focus SRUS)

"Trouble free, well signposted"

(A1(M) May 2022) (Transport Focus SRUS)

"Roads were good, not overcrowded"

(A1(M) April 2022)(Transport Focus SRUS)

"Made reasonable time. Flow of traffic was good"

(A1(M) April 2022)(Transport Focus SRUS)

"Smooth, well signposted"

(A1 April 2022) (Transport Focus SRUS)

"Although very busy, traffic kept flowing"

(A1(M) March 2022) (Transport Focus SRUS)

"No delays, everything ran smoothly"

(A1 January 2022) (Transport Focus SRUS)

"Well lit, lane markings clear and bright. Low traffic volume"

(A1(M) January 2022) (Transport Focus SRUS)

M11:

"M11 Junction 8-9 lorry overtaking ban is good in principle, but congestion is still a problem"

(Route strategies engagement)

"Very limited technology on the M11"

(Route strategies engagement)

"M11 Junction 8 needs planning for a long-term solution to meet future employment, housing and airport (passenger and freight) growth"

(Route strategies engagement)

"M11 Junction 8 causes severance, limiting opportunities at new developments for those without a car"

(Route strategies engagement)

"Passenger and freight access to Stansted Airport is vital for the long-term economic future"

(Route strategies engagement)

"The M11 south of Junction 8 can experience delays and safety issues, and needs improvement"

(Route strategies engagement)

"Good road surface, clear road markings and signage"

(M11 December 2021) (Transport Focus SRUS)

"Incident free" (M11 October 2021)

(Transport Focus SRUS)

"No delays and road surface was in good condition"

(M11 July 2021) (Transport Focus SRUS)

Route satisfaction

Satisfaction scores have been obtained from Transport Focus through their Strategic Roads User Satisfaction Survey from the last 12 months to May 2022. It covers the roads in this route but it should be noted that the satisfaction scores may not fully align with the extent of the roads in the route. Figure 12 shows how satisfied drivers were with aspects of their journey and how they felt during their journey.

Additional comments and data from the Transport Focus survey of drivers on the SRN can be found on the Transport Focus data hub website[17].

The engagement themes and feedback from MPs, interested parties, road users and communities has been considered as part of the wider analysis in Chapter 5.

Strategic roads user survey satisfaction scores

The survey was not run between April 2020 and March 2021 due to COVID-19. It restarted in April 2021 with a new methodology, so results prior to March 2020 and from April 2021 are not directly comparable.

National Highways Region: Midlands
National Highways Area: Area 9 West Midlands
Individual road M50, M54, A5, A40, A49, A458, A483
Last 12 months* ** May 2022 (last 12 months)

** result hidden as less than 75 responses
*** Before March 2019 and from April 2021 to February 2022 this is year-to-date, not past 12 months

Figure 12: Satisfaction scores from headline results

17 Transport Focus data hub: https://transportfocusdatahub.org.uk/

Working with our partners

04 Network collaboration

The strategic road network (SRN) does not exist in isolation. Most journeys on the SRN are part of a longer journey, involving other road networks or different transport modes.

To deliver safe and efficient journeys for our customers and to support economic and housing growth, at National Highways we have built relationships with other organisations to ensure the SRN maximises its contribution to the overall transport system, which includes local roads, rail networks, links with the devolved nations and international connectivity. We work with other network operators (such as Network Rail), airports and ports, Sub-national Transport Bodies, Transport for Wales and Transport Scotland, as well as combined authorities and local highway authorities. This is in line with National Highways' Licence requirements to consider opportunities for collaborative solutions. We recognise that joint early planning of interventions outside our network will ultimately improve the SRN and deliver greater benefit to the customer than could be achieved alone, where this delivers value for money.

An integrated transport network

Route strategies recognise the role that the SRN plays within the wider transport network. In planning for the future of the SRN, we recognise the importance of working closely with other network planners and operators to ensure our transport networks work well together, and that our investment priorities are aligned where possible.

Some parts of our network are operated on our behalf by a third party under Design-Build-Finance-Operate (DBFO) arrangements. We work closely with these operators to deliver a seamless experience for road users. On the London to Leeds route this includes the Alconbury to Peterborough section of the A1(M) operated by Road Management Services (Peterborough) Ltd until 2026, and part of the Darrington to Dishforth section of the A1(M) operated by Road Management Services (Darrington) Ltd until 2036.

Sub-national Transport Bodies have a key role in their regions in creating transport strategy and identifying key areas for investment, including for highways. There are seven such bodies in England, who are tasked with developing transport strategies and studies for their particular area.

Through the collection of evidence with their local authorities and Local Enterprise Partnerships, their work highlights multimodal issues, needs and opportunities. A list of potential interventions for transport are then provided to the Secretary of State for Transport, including where to prioritise investment in the major road network (MRN). We work closely with the Sub-national Transport Bodies on interdependencies and align our approaches where possible. The Sub-national Transport Bodies that cover this route are:

- Midlands Connect
- Transport for the North
- England's Economic Heartland
- Transport East

National Highways and Sub-national Transport Bodies have worked together to develop an engagement framework. The need for closer working was highlighted as a priority in *DfT's Road investment strategy 2*[18], and within our *Strategic business plan*[19] and *Delivery plan*[20]. It enables National Highways and Sub-national Transport Bodies to work together to achieve mutually beneficial outcomes for transport users, regional economies and the environment.

18 Department for Transport (March 2020) *Road Investment Strategy 2: 2020-2025.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/951100/road-investment-strategy-2-2020-2025.pdf
19 Highways England (2020) *Strategic business plan: 2020-2025.* https://nationalhighways.co.uk/strategic-business-plan/
20 Highways England (2020) *Delivery plan: 2020–2025.* https://nationalhighways.co.uk/delivery-plan/

Our approach to engagement is contained in *Our vision for route strategies*[21], which sets out a shared commitment for a continued open, constructive and collaborative relationship.

This is supported by engagement and action plans for each Sub-national Transport Body, which are proving instrumental in ensuring consistency and transparency in the information we share. The plans are monitored and reviewed regularly, with annual reviews occurring ahead of each new financial year.

At a more local level we also work with local authorities, who are the highway authorities for local roads, including those on the MRN. This collaboration ranges from operational matters to more strategic issues to ensure that the overall highway network operates safely, efficiently and effectively, providing high quality and seamless customer journeys. The local authority planning teams work closely with our spatial planning teams. In enabling new employment spaces and homes to be developed, we engage appropriately as a statutory consultee in the planning system and the evidence collected through the route strategies will support this decision making.

Midlands Connect

Midlands Connect is the Sub-national Transport Body for the Midlands and is the transport arm of Midlands Engine (which acts as a focal point to drive economic growth in the region). It is a partnership of local authorities, Chambers of Commerce, Local Enterprise Partnerships, national agencies and airports.

Midlands Connect published its first *Strategy*[22] in 2017, and since then it has researched, developed and progressed transport schemes designed to deliver social, economic and environmental benefits. The 2017 strategy was refreshed in 2022.

Midlands Connect's new strategy, *Fairer, greener, stronger: a Strategic Transport Plan for the Midlands*[23], sets out an investment programme that improves strategic connectivity between the East and West Midlands, to neighbouring regions and to Wales.

This strategic investment will be complemented by improvements to local connectivity made by local authorities and regional economic growth plans from the Midlands Engine.

Midlands Connect has identified three grand challenges that strategic transport investment must help tackle to achieve its vision of a fairer, greener and stronger Midlands:

1. **Fairer:** Levelling up and strengthening the region and UK. Being ready for HS2, enhancing quality of life, and integrating transport networks
2. **Greener:** Decarbonising transport and adapting to climate change. Contributing to achieving net zero by 2050, ensuring resilient networks, and minimising the environmental impacts of new infrastructure
3. **Stronger:** Driving resilient economic growth. Providing fast and reliable transport connections; and enabling population and employment growth

The new *Strategic Transport Plan* sets out five priorities to improve regional connectivity:

- Aspirations for rail
- A future road network that is reliable, resilient and efficient for all
- Helping to move goods
- Responding to transport challenges in rural areas
- Maximising technology-related opportunities to improve connectivity

21 Highways England (2021) *Vision for route strategies: planning for the future of our roads.* https://nationalhighways.co.uk/media/w0vhd3un/vision-for-route-strategies.pdf
22 Midlands Connect (March 2017) *Midlands Connect Strategy: Powering the Midlands Engine*. https://www.midlandsconnect.uk/media/1224/midlands-connect-strategy-march-2017.pdf
23 Midlands Connect (April 2022) *Fairer, greener, stronger: a Strategic Transport Plan for the Midlands.* https://www.midlandsconnect.uk/strategy

In terms of roads, Midlands Connect is seeking investment to improve the service to users of the SRN and MRN, make best use of technology and help to accelerate use of electric cars and alternatively fuelled goods vehicles, and to futureproof roads against the impacts of climate change and to protect the environment.

Midlands Connect has undertaken studies on a number of important trade and logistics corridors that, if enhanced, could catalyse business growth, boost productivity and support the development of new housing and export markets.

Through these studies, Midlands Connect has identified eleven priority locations for investment during the third road period (2025-2030) and onwards where the SRN needs to 'work harder'. In most cases, specific solutions for these locations have not been identified, with multimodal solutions expected to be considered. The priority location identified on this route is the A1/A52 junction at Grantham, where Midlands Connect is seeking improvements to support local growth and maintain the strategic performance of the A1 and A52.

Transport for the North

Transport for the North (TfN) published its *Strategic Transport Plan*[24] (STP) in 2019. It is due to be updated by 2024. The STP was informed by their 2017 initial Major Roads Report (published as final[25] in 2021), which maps the MRN for the region, identifying the locally strategic roads vital for economic growth. The objectives of the STP are:

- transforming economic performance
- increasing efficiency, reliability, integration, and resilience in the transport system
- improving inclusivity, health, and access to opportunities for all
- promoting and enhancing the built, historic, and natural environment

It aims to:

- connect people by improving access to leisure and tourism assets and work opportunities, whilst widening the labour market for businesses
- connect business by improving connections to collaborators, clients and competitors, including those within the prime and enabling capabilities
- move goods by supporting businesses to move freight and goods efficiently and across modes

The STP identifies seven 'Strategic Development Corridors' based around economic links across the North. They are not traditional transport corridors but represent where the largest gaps between demand and performance currently exist, and where there is the most potential for growing the economy.

The London to Leeds route contributes most directly to the Yorkshire-Scotland Strategic Development Corridor. On this corridor, TfN seeks to strengthen road connectivity between the Midlands, South Yorkshire, West Yorkshire, North Yorkshire, East Riding, Tees Valley, the North-East, and Scotland, building on the existing road investment commitments. The major north-south routes of the A1 and A19 must provide a consistent level of service and resilience to meet the needs of the important economic centres they link and the strategic journeys they facilitate. Improved transport connectivity between the cities and surrounding economic centres, such as along the A19, will increase productivity and support the growth of complementary industrial capabilities. It could transform the movement of people and goods within this corridor, as well as strategic journeys between Scotland and the Midlands. This would complement Midlands Connect and Transport Scotland's aspirations for additional north-south connectivity and resilience.

24 Transport for the North (2019) *Strategic Transport Plan.* https://transportforthenorth.com/wp-content/uploads/TfN-final-strategic-transport-plan-2019.pdf
25 Transport for the North (2021) *Major Roads Report.* https://transportforthenorth.com/reports/major-roads-report-dec-2021/

England's Economic Heartland

England's Economic Heartland (EEH) published its Regional Transport Strategy titled *Connecting People, Transforming Journeys*[26] in 2021. The Strategy outlines the framework for enabling green economic growth, in a way which also creates a net zero transport network. The Strategy further details the importance of working with partners, local Growth Boards and national initiatives, including the Oxford to Cambridge Arc.

The four key priorities of EEH are:

- Achieving net zero carbon emissions from transport no later than 2050, with an ambition to reach this by 2040
- Improving quality of life and wellbeing through a safe and inclusive transport system accessible to all which emphasises sustainable and active travel
- Supporting the regional economy by connecting people and businesses to markets and opportunities
- Ensuring the Heartland works for the UK by enabling the efficient movement of people and goods through the region, and to and from international gateways, in a way which lessens its environmental impact

These strategic priorities set out how the region can reduce reliance on private car usage by creating better connectivity within communities. It also details how the Heartland will work to harness leading expertise in clean, green and smart technologies, allowing the region to have a competitive edge in global markets.

Whilst the transport strategy is ambitious, it aims to deliver the vision of EEH by supporting sustainable growth and improving the quality of life through a decarbonised transport network. This will encourage innovation and create further opportunities for local residents and the local economy, whilst also benefitting the national and international economy.

Transport East

Transport East published its *Draft Transport Strategy* in November 2021[27]. It aims to overcome some of the transport challenges experienced by delivering a fit for purpose, high quality inclusive and sustainable transport network that will be able to accommodate future growth in the area. Transport East's vision is "A thriving economy for the East, with fast, safe, reliable and resilient transport infrastructure driving forward a future of inclusive and sustainable growth for decades to come."

Transport East has four strategic priorities to deliver this vision:

- **Decarbonisation to net zero:** Working to achieve net zero carbon emissions from transport, building on the region's status as the UK's premier renewable energy region
- **Connecting growing towns and cities:** Providing enhanced links between the region's fastest growing places and business clusters. Improving access for people to jobs, supplies, services, and learning: enabling the area to function as a coherent economy, improving productivity
- **Energising coastal and rural communities:** A reinvented sustainable coast for the 21st century which powers the UK through energy generation. Supporting the region's productive rural communities and attracting visitors all year round
- **Unlocking international gateways:** Better connected ports and airports to help UK businesses thrive, boosting the nation's economy through better access to international markets and facilitating foreign investment

26 England's Economic Heartland (February 2021) *Regional Transport Strategy: Connecting People, Transforming Journeys.* https://www.englandseconomicheartland.com/documents/405/Connecting_People_Transforming_Journeys_av.pdf

27 Transport East (November 2021) *Draft Transport Strategy.* https://www.transporteast.org.uk/wp-content/uploads/TransportEastStrategy.v6.pdf

Interaction with the major road network and local roads

The major road network (MRN) is the middle tier of England's road network, comprising the busiest and most economically important local authority A-roads. It is key to supporting the economic vitality of England, particularly with its role, along with the SRN, of delivering 'first and last mile' connections and onward journeys. It acts as a connecting spine for the SRN, with one of the objectives in establishing the MRN being to support the SRN through improving journeys across both networks.

The MRN represents the roads that our partners in local authorities and Sub-national Transport Bodies see as being strategically most important, along with the SRN.

The relationship between the SRN and MRN is complex. The two networks connect people with economically important locations across England, as well as providing resilience for each other. Interventions on one network can also significantly influence travel behaviours on the other. Most SRN journeys involve elements of both networks.

It is therefore important that decisions about the SRN, MRN and other local roads are made in a joined-up way to ensure that the networks are consistent, coherent and complementary. We recognise that the key to the success of the Road Investment Strategy is ensuring the impacts of any interventions are appropriately considered across all networks as well as at their junctions. Both networks play a key role in customers' journeys, and they expect a seamless transition between the two. We are continually seeking to identify collaborative solutions that meet our obligations under the National Highways Licence to improve network performance and provide integration benefits. In developing the route strategies, we aim to ensure the planning for the SRN, MRN and other local roads is complementary.

The London to Leeds route interacts with numerous MRN routes throughout its length. In Hertfordshire and Bedfordshire these include the A414, A602, A505, A507 and A603, which provide-east west connectivity within this sub-region's multi-centred urban structure.

The route's MRN links to Northamptonshire, Leicestershire and beyond include the A605, A43 and A47 around Peterborough and the A607 at Grantham, all supporting strategic journeys to and from central England. On the eastern side of the A1, the A1139 (leading to the A16) and A47 at Peterborough and the A17 at Grantham connect the A1 to Lincolnshire and the Fens. These are particularly important for the food and agri-tech sector. There are further MRN connections with the A617, A57 and A614 in Nottinghamshire, and with the A614, A630 and A635 around Doncaster. The A63 towards Leeds or Selby intersects with the A1(M) close to the northern end of the route.

Along the M11, there are MRN connections with the A414 and A120 which provide east-west connectivity in Hertfordshire and Essex. Closer to Cambridge the M11 links to the A505 and A10, and to a short MRN section of the A1303 which connects the M11 and the A428.

Freight and logistics

The Future of Freight: a long-term plan (DfT June 2022)[28] sets out priorities for the UK's freight industry. It recognises that in 2019 the sector contributed 10% of the UK non-financial business economy and £127 billion gross value added (GVA) through more than 200,000 enterprises, noting that, with imports and exports comprising 63% of gross domestic product (GDP) in 2019, we are reliant on the freight and logistics sector for our economic wellbeing. In the UK, around 1.65 billion tonnes of freight are lifted by all modes each year.

28 Department for Transport (June 2022) *Future of Freight: a long-term plan.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1085917/future-of-freight-plan.pdf

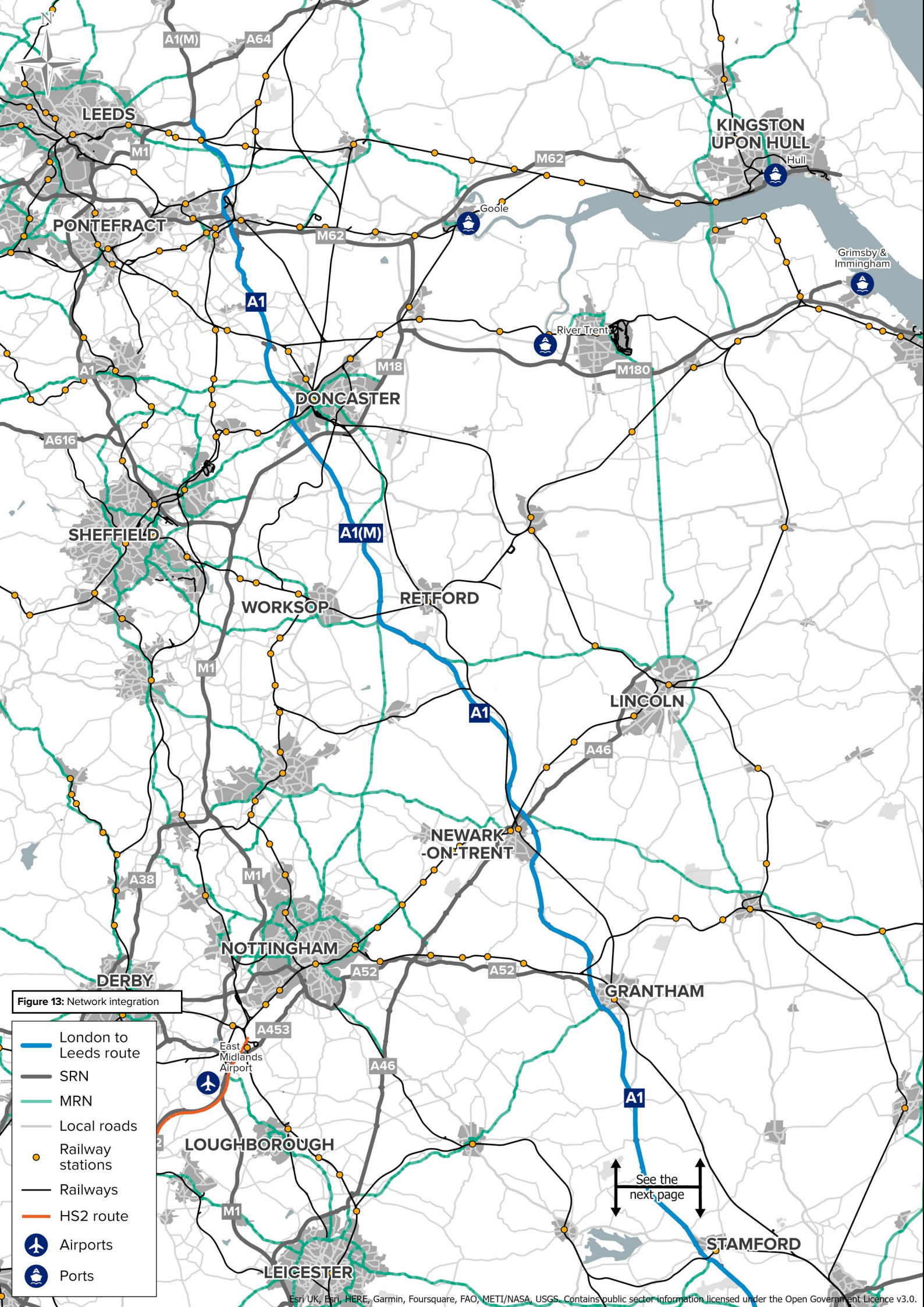
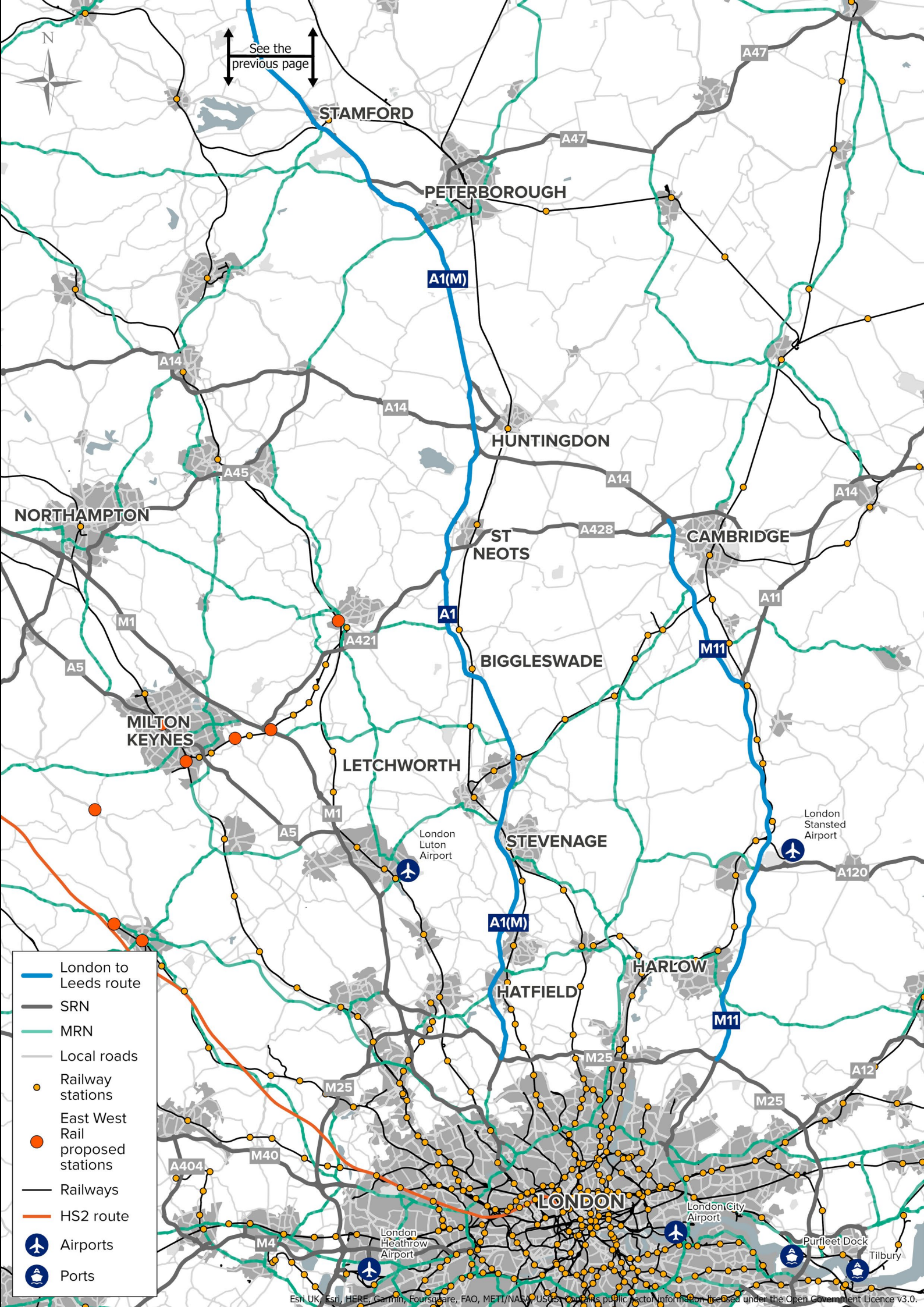


Figure 13: Network integration



The London to Leeds route has a key role in serving long-distance freight traffic. For example, online route planners show that the shortest route from Dover to Glasgow in both time and distance is via the M11, A1 and A66. There are also freight distribution centres throughout the route. In Nottinghamshire and Lincolnshire, the regional economy relies heavily on the SRN and the A1 is a key spine.

These factors are reflected in the level of freight traffic on the route: much of the A1 and A1(M) north of Huntingdon and the M11 carries 5,000-10,000 heavy goods vehicles each day, representing around 20% of traffic on these sections.

There is a need to provide short term parking for long-distance freight. For example, a lorry travelling from the port of Felixstowe to the North or Scotland is likely to be on the 4.5 hour driving limit in the Doncaster/Leeds area, so would need to take a 45-minute break by then. Felixstowe to Edinburgh via the A1(M) is the main viable route an HGV would take, highlighting the significance the route has for long distance journeys.

The *National Survey of Lorry Parking*[29] undertaken by the Department for Transport in 2017 showed a high level of overnight off-site parking, for example in laybys and industrial or retail parks, along the A1 through the East Midlands. In the context of a shortage of heavy goods vehicle drivers and a need to provide suitable overnight facilities, this level of usage was seen as indicating a shortage of high-quality facilities and drivers preferring to use free facilities. The study also found Nottinghamshire to be one of the problematic locations for freight crime. Most reported freight crime within the county was along the A1 and in a concentration around the A1 / A46 junction.

Along the length of the London to Leeds route, truckstop utilisation - meaning how full they were - varied but many were found to be above 85% utilisation, including most locations between the M25 and Peterborough via the A1 and A1(M) or the M11.

Several of these were found to be operating considerably above capacity. However, the London to Leeds route was not among those identified by the survey's stakeholders as a particular location of a heavy goods vehicle parking shortage.

The M11 only has one lorry park, which often experiences high demand. As the M11 forms part of the route between London and Stansted Airport, it is important there is sufficient lorry parking capacity to facilitate these movements, especially when waiting for cargo aircraft.

Diversionary routes

To operate a resilient road network, we need to be able to effectively divert traffic off the SRN in the event of unplanned incidents (such as collisions or emergency roadworks), or as part of planned closures (such as planned improvement schemes). The MRN, along with the rest of the local road network, supports the SRN as diversion routes during these events.

We have agreed diversion routes for emergency events with local authorities. Diversion routes for planned events are discussed and agreed with local authorities on a case-by-case basis. These routes are dependent upon the nature of the incident, and the suitability and availability of the surrounding network. In some cases, the diversion route may not be suitable for certain types of traffic, such as heavy goods vehicles (HGVs), or non-motorway traffic, such as cycles and tractors. In other cases, diversionary routes may not be available due to events on the local road network. We work closely with local authorities to ensure that suitable diversion routes are available.

29 AECOM on behalf of the Department for Transport (2018) *National Survey of Lorry Parking.* https://www.gov.uk/government/publications/national-survey-of-lorry-parking

Network Rail and other network operators

The SRN plays an important role in the movement of passengers and freight across England, and it needs to be considered alongside the wider transport network. The rail network is also important in moving freight and people over longer distances and helping commuters travel into congested cities. Better integration between road and rail can help to transfer more journeys onto rail. This can help to relieve congestion on the SRN, as well as improve the environment by increasing the use of more sustainable transport modes.

At a strategic level, we work closely with Network Rail and train operators to find opportunities to better integrate the two networks to benefit the movement of freight and people. This involves seeking opportunities to place rail stations in strategically important locations with easy access to the SRN.

The *Network Rail Delivery Plan*[30] presents a vision of "putting passengers and freight users first". This recognises that Network Rail can improve the daily lives of people across the country by striving to constantly improve the quality of its service across the whole railway system. Network Rail delivers its vision through a regional structure committed to responding to the needs of local customers and interested parties, more quickly than if such decisions were to be made at a national level.

The A1 and A1(M) run parallel to the East Coast Main Line (ECML), which has long-distance, high-speed rail services between London, Peterborough, Yorkshire and beyond to Scotland. There are also regional, suburban or local services on individual parts of the line. Key interchange or gateway stations include Stevenage, Peterborough, Grantham, Newark, Retford and Doncaster. Together, the ECML and connecting rail routes offer journey opportunities to locations such as Birmingham, Cambridge, Norwich, Sheffield, Humberside and Manchester. Network Rail's 2018 *East Coast Main Line Route Study*[31] identified the need for investment to create a resilient railway that can grow in line with the demands of its customers, including the possibility of a new station at Alconbury. In 2021 the Government's *Integrated Rail Plan for the North and Midlands*[32] included upgrading and speeding up the ECML. The proposed East West Rail would cross the A1 and the ECML with a station in the St Neots / Sandy area.

The M11 between London and Cambridge runs parallel to the West Anglia Main Line (WAML). This provides regional and suburban connectivity including rail access to London Stansted Airport. *Network Rail's 2021 study*[33] into medium-term investment choices for the WAML identified its stakeholders' aspirations for faster journey times and improved performance on this line.

The M11 and A1 corridors are connected by regional services such as Stansted-Birmingham, with key interchange nodes at Cambridge, Ely and Peterborough. Our route strategies understand the need for improved road and rail connectivity, and links between rail facilities and the SRN.

We also work with the operators and promoters of urban rapid transit systems where there are opportunities for better integration. For example, through the creation of park and ride sites to remove traffic from the road network.

30 Network Rail *Our Delivery Plan for 2019-2024* website: https://www.networkrail.co.uk/who-we-are/publications-and-resources/our-delivery-plan-for-2019-2024/

31 Network Rail (2018) *East Coast Main Line Route Study.* https://sacuksprodnrdigital0001.blob.core.windows.net/regional-long-term-planning/Eastern/Archive/East%20Coast%20Main%20Line%20Route%20Study.pdf

32 Department for Transport (November 2021) *Integrated Rail Plan for the North and Midlands.* https://www.gov.uk/government/publications/integrated-rail-plan-for-the-north-and-the-midlands

33 Network Rail (2021) *West Anglia Main Line Medium-Term Study.* https://sacuksprodnrdigital0001.blob.core.windows.net/regional-long-term-planning/Eastern/West%20Anglia%20Main%20Line%20Study%202021.pdf

Strategic connectivity

The SRN plays a key social and economic role in connecting England with the devolved authorities of the UK, particularly Wales and Scotland, but also, via ports, Northern Ireland. We work closely with Transport for Wales and Transport Scotland to ensure our key cross-border routes are joined up effectively with those in Wales and Scotland to ensure easy journeys for our customers. This strategic connectivity is reflected in the Government's commitment to strengthening transport connections across the UK, guided by Sir Peter Hendy's *Union Connectivity Review*[34] published in late 2021. The report recommends the creation of UKNET, a strategic transport network spanning the entire United Kingdom.

UKNET would be based on a series of principal transport corridors between key urban and economic centres, including international gateways. The findings of this report have been considered in our route strategies, particularly for our cross-border routes and roads connecting to important ports.

This London to Leeds route forms part of a spine connecting Scotland with the East Midlands and South-East England for movement of people and freight, as well as supporting wider international connectivity.

International connectivity

One of the objectives of the SRN is to support the important economic activity involved in international passenger and freight movement via good connections to ports and airports. A key aspect of route strategies is ensuring that future investment continues to support these essential movements.

The route has a key role in serving long-distance traffic, particularly freight, to and from the Humber, Haven and south-east ports such as Immingham, Felixstowe and Dover. It also provides access to London Stansted Airport for passengers and freight from London, Cambridge, much of Eastern England and the Midlands.

34 Hendy, P. (November 2021) *Union Connectivity Review: Final Report.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1036027/union-connectivity-review-final-report.pdf

Challenges and issues on the route

05 Challenges and issues

We recognise that there are existing challenges and issues on the network and these are outlined against the Department for Transport's six strategic objectives as part of the route strategy evidence base.

1. Improving safety for all

The International Road Assessment Programme (iRAP) Star Ratings are based on road inspection data and provide a simple and objective measure of the level of safety which is 'built-in' to the road. The higher the star rating, the safer the road. iRAP Star Ratings are produced for each 100-metre section of road, based on detailed inspections of roadside features as well as traffic flow, speed, pedestrian and cyclist use, and crash data.

iRAP data helps us to predict future risk within a wider Safe System approach. Safe System thinking accepts that humans will make mistakes but considers what is within the scope of our influence to limit the injuries sustained. The iRAP approach to managing future risk complements the more traditional approach of analysing historical incident data provided by STATS19 as a means of predicting future collisions and casualties.

STATS19 data are the statistical data published by the Office for National Statistics about personal-injury road traffic collisions reported to the police. STATS19 remains the most detailed, complete, and reliable single source of information on road casualties covering the whole of Great Britain, in particular for monitoring trends over time.

For the purposes of National Highways Route Strategies, the total fatal and serious injuries are aggregated by the section of road on which they occurred, based on the National Traffic Information Service (NTIS) network.

The NTIS network used for displaying traffic data is the full extent of the roads for which National Highways are the highway authority. The NTIS network is modelled for each side of the carriageway, such that NTIS links are one-directional and split at junctions. The data used only includes main carriageways; slip roads, roundabouts and other types of road are not modelled in this dataset. The length of an NTIS link can vary greatly depending on what part of the network it represents. Use of the NTIS network provides a common geometry which can be used to compare the STATS19 data with network performance and other metric data.

A combination of star ratings and historic data can help us to prioritise route treatments. Where the density of incidents resulting in death or serious injury is high, and the star rating is low (poor), it indicates something can be done to prevent future collisions where people are killed or seriously injured.

The Road Safety Foundation crash risk mapping produces maps that show the statistical risk of fatal or serious injury crash occurring. The risk is calculated by comparing the frequency of road crashes that result in death and serious injury with how much traffic each road is carrying. For example. the risk on a road carrying 10,000 vehicles a day with 20 crashes is ten times the risk on a road that has the same number of crashes but which carries 100,000 vehicles.

The latest available iRAP data shows that overall the route is generally at a 3-star standard with some 4-star sections. The main exceptions are:

- the A1 between Baldock and Wyboston, which is mostly at a 2-star standard
- short 2-star sections on the A1 near Buckden, Water Newton, Woolfox and Great Ponton
- a short 2-star section on the A1(M) northbound at the merge with the M1
- a short 2-star section on the M11 northbound Junction 8A slip road

STATS19 data show that there are concentrations of collisions where people were killed or seriously injured on:

- parts of the A1(M) around Stevenage
- sections of the A1 between Letchworth and Biggleswade, near Stamford, near Grantham, at Newark and near Retford
- part of the A1(M) and A1 near Adwick-le-Street
- the M11 between junctions 6 (M25 and 9 (A11) (although this includes some particularly long NTIS links so does not necessarily indicate concentrations)

Using the latest available Road Safety Foundation collision risk and density data on collision rates (rates per vehicle-kilometre, representing risk to individuals), much of the route is in the low-risk (safest) category for collision rates and the remainder in the low- medium risk category. The low-medium risk sections are on the A1 from:

- Baldock to Black Cat
- Peterborough to Newark
- Redhouse to Darrington

Improving safety and minimising collision rates is a key consideration for all our routes

The data on collision density (rates per road-kilometre, representing collective risk – that is, overall risk levels) again show much of the route to be in relatively safe categories. The highest collision density areas on the route are:

- the A1 from Peterborough to Stamford
- the A1 from Redhouse to Darrington
- the M11 between Junctions 6 (M25) and 8 (Bishop's Stortford)

For motorcyclists, the collision density (reflecting the overall level of risk to motorcyclists) is highest on the A1(M) and A1 between the M25 and Black Cat, and again the M11 between Junctions 6 (M25) and 8 (Bishop's Stortford). Motorcyclists are involved in more than 25% of the collisions on the A1(M) and A1 between the M25 and Black Cat, and on the A1 between Newark and Blyth. They are involved in more than half of the collisions on the A1(M) between Darrington and the M1 merge.

Key challenges

- Some sections of the route have 2-star iRAP safety ratings
- There are locations with concentrations of collisions where people were killed or seriously injured
- Some sections of the route have high proportions of collisions involving motorcyclists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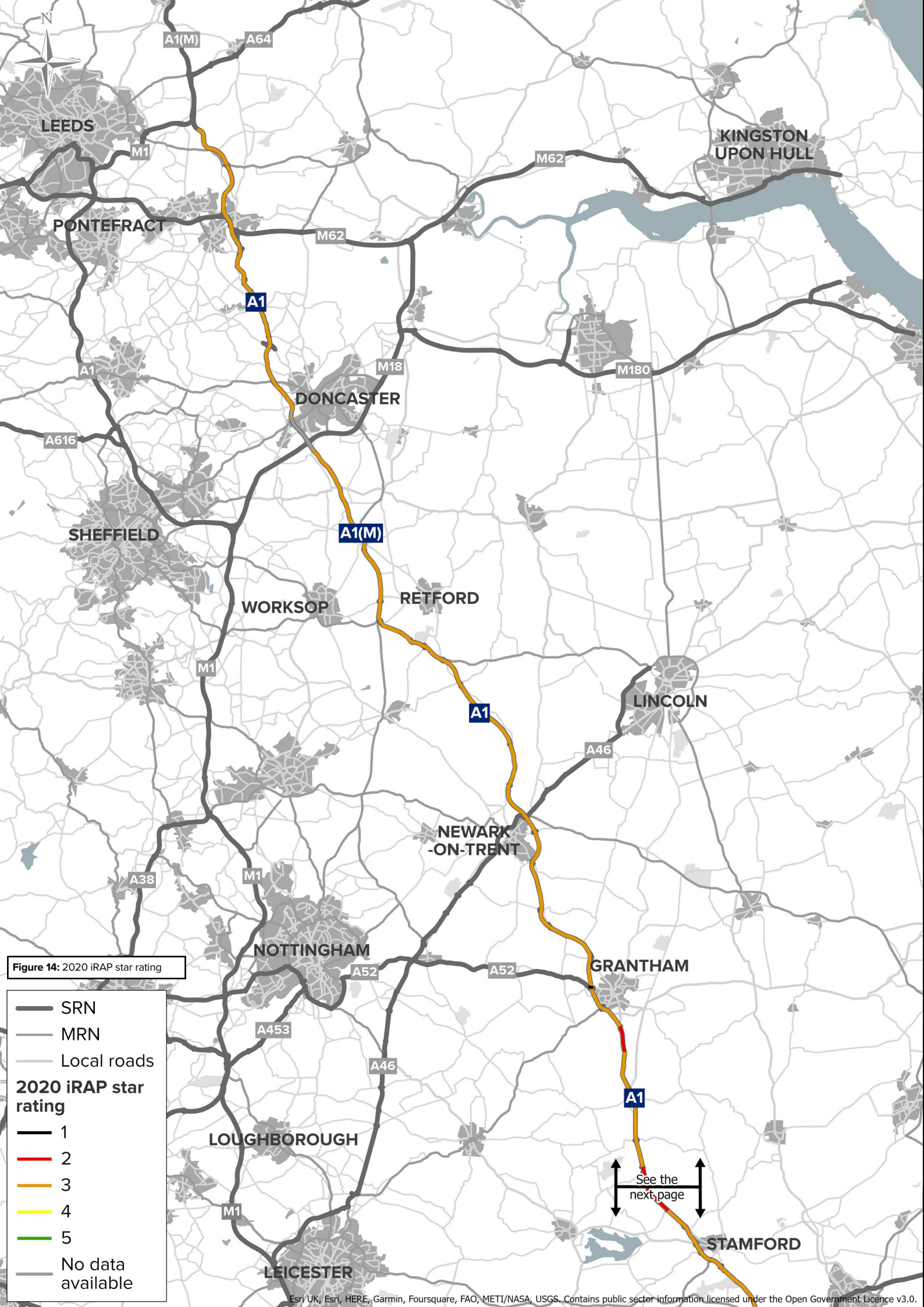
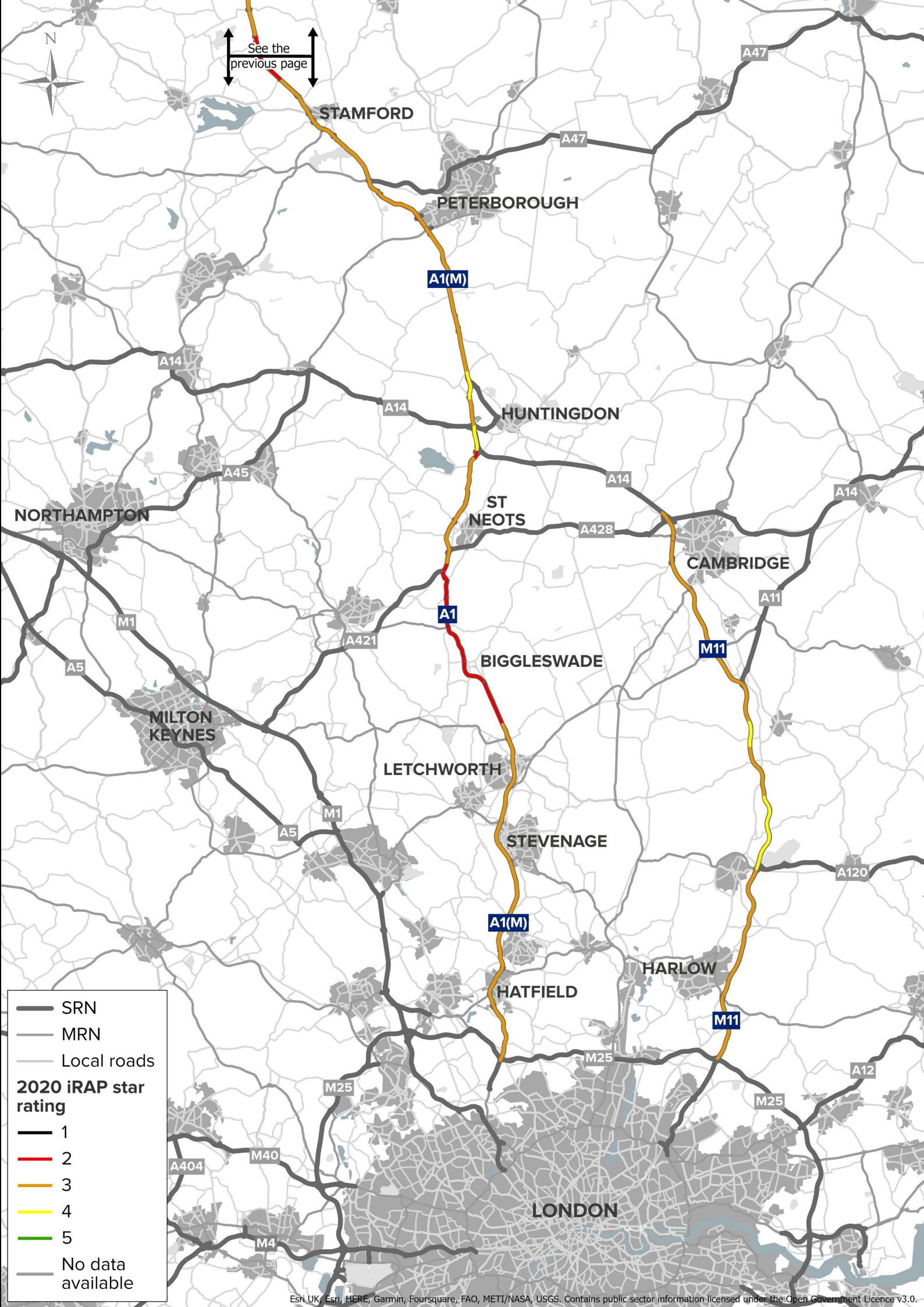


Figure 14: 2020 iRAP star rating


N
See the previous page
STAMFORD
A47
A47
PETERBOROUGH
A1(M)
A14
A14
HUNTINGDON
A45
A14
A14
NORTHAMPTON
ST NEOTS
A428
CAMBRIDGE
A11
M1
A1
A421
M11
BIGGLESWADE
A5
MILTON KEYNES
LETCHWORTH
M1
A5
STEVENAGE
A120
A1(M)
HARLOW
HATFIELD
M11
M25
A12
M25
M25
M40
A404
LONDON
M4
SRN
MRN
Local roads
2020 iRAP star rating
1
2
3
4
5
No data available
Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS. Contains public sector information licensed under the Open Government Licence v3.0.

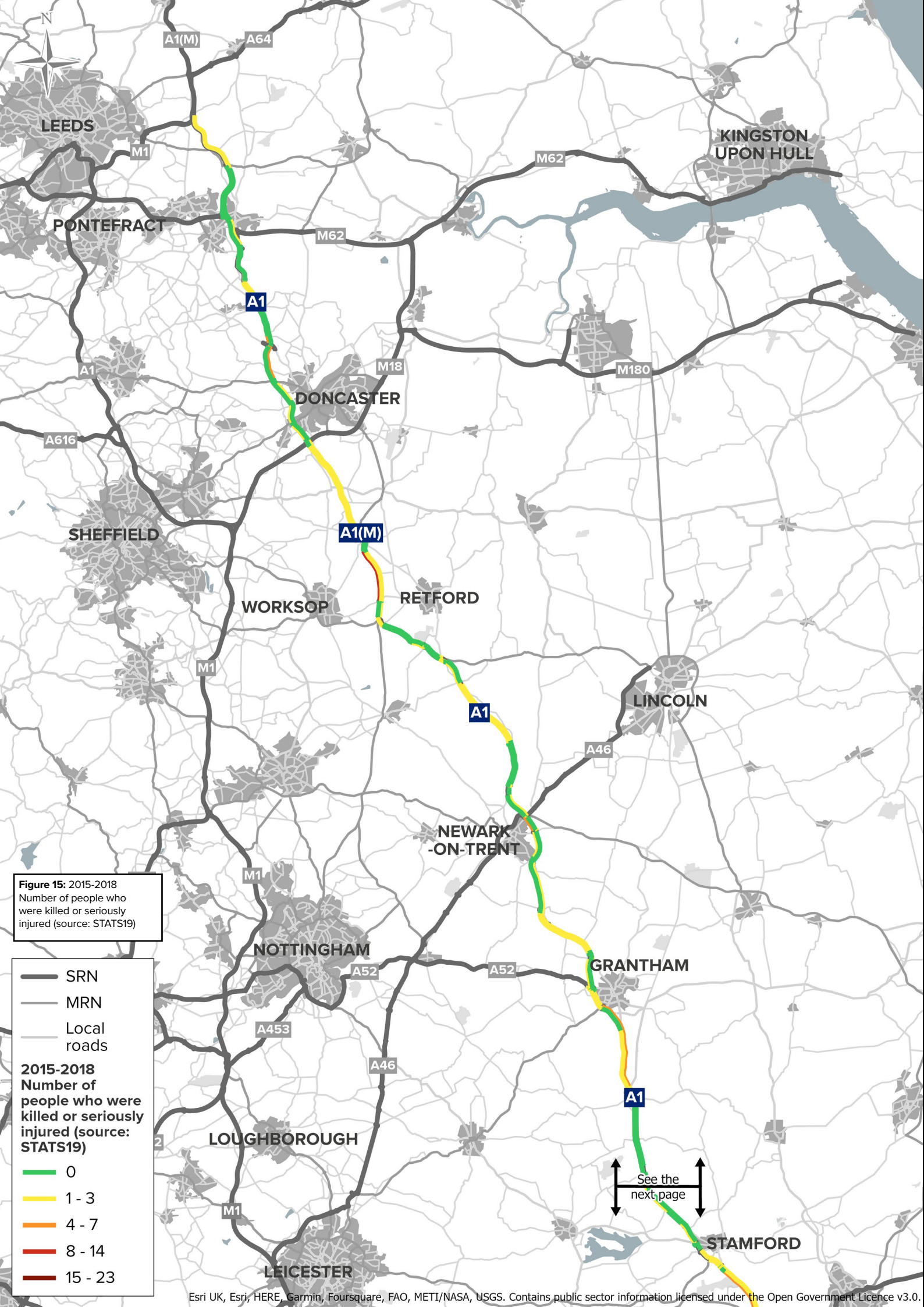
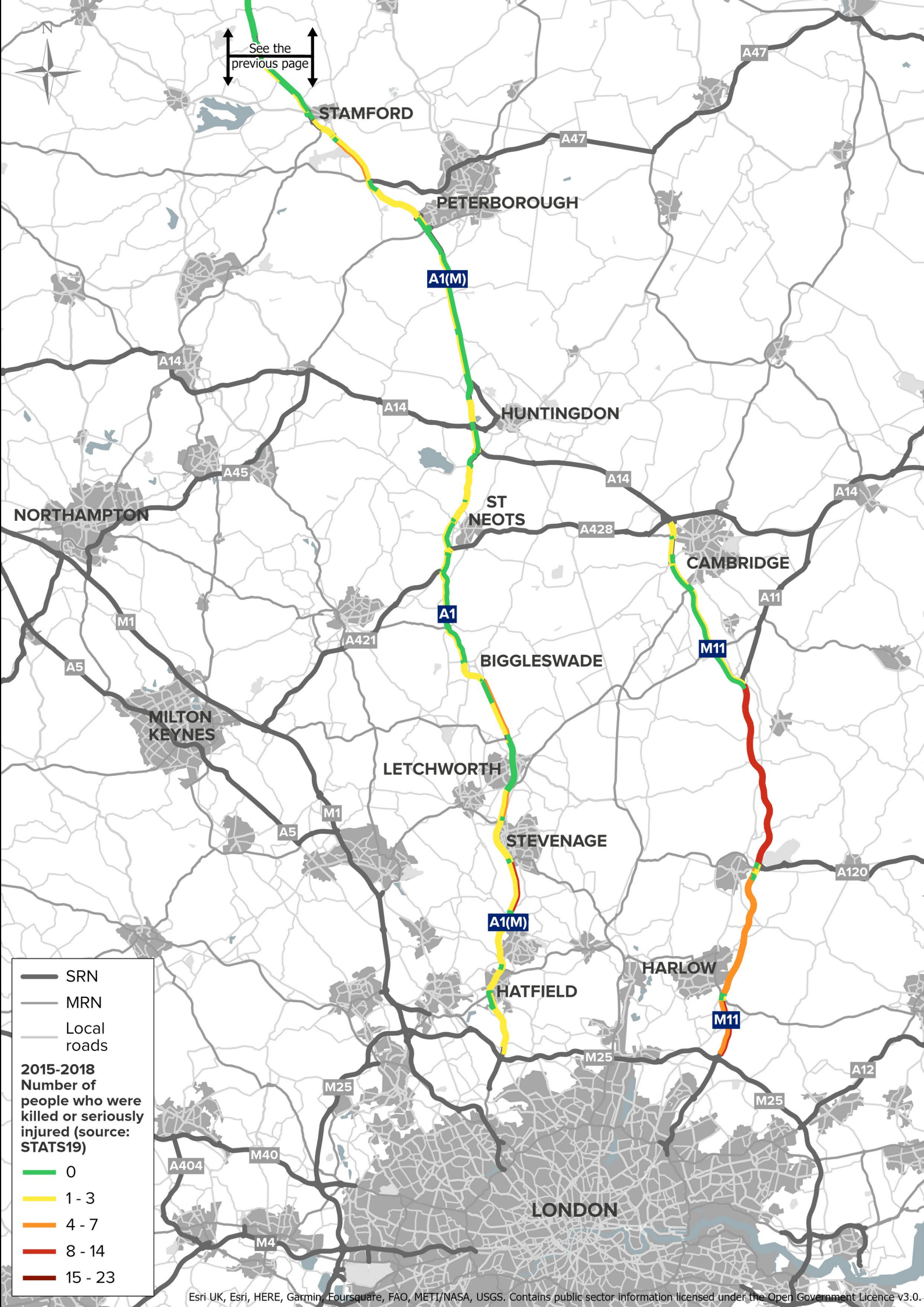


Figure 15: 2015-2018 Number of people who were killed or seriously injured (source: STATS19)



2. Network performance

Network performance is measured by average delay, average peak period delay, seasonal delay, and journey time reliability. Many sections of the London to Leeds route route experience one or more of these types of delay.

On more than 90% of the London to Leeds route, the average delay is less than 15 seconds per vehicle per mile (pvpm). However, there are still areas of congestion or where interested parties have expressed concern over resilience to incidents, including:

- parts of the A1(M) between the M25 and Baldock
- the A1 between Biggleswade and Huntingdon
- the A1 between Peterborough and Blyth
- the A1 and A1(M) around Doncaster
- parts of the M11

The A1(M) between the M25 and Baldock currently experiences peak period congestion at a number of locations. Average peak period delay exceeds 30 seconds pvpm during the morning peak southbound at Stevenage between Junctions 8 and 7, and during the afternoon peak northbound at Welwyn Garden City between Junctions 5 and 6. High traffic volumes mean the Hatfield to Stevenage section sees high levels of total delay. Reliability exceeds 5 seconds pvpm between Junctions 5 and 6 at Welwyn Garden City. Delays on this stretch affect access to key economic centres as well as strategic traffic.

On the A1 between Biggleswade and Huntingdon, average peak period delays exceed 30 seconds pvpm during the morning or afternoon peaks on one or both approaches to each of the Biggleswade (north), Sandy and Black Cat roundabouts. The high traffic volumes mean that these roundabouts have high levels of total delay. These locations, plus the approaches to Buckden roundabout, also tend to have reliability exceeding 5 seconds pvpm. Delays on this section affect access to towns along the route as well as strategic traffic.

We want to improve journey times on route sections which currently experience high levels of delay and are expected to worsen in the future

Average peak period delay is measured in seconds per vehicle per mile and is the difference between average delay in the morning or afternoon peak period and the average delay during free flow conditions.

Seasonal delay refers to the difference between the average afternoon peak delay for Fridays in August 2019 (high demand in summer holidays) and the average delay during very low demand periods (in this case, Christmas day is used). This measure is designed to reflect the parts of the network that do not appear to have a problem on average over the year but have seasonal peaks.

Seasonal delay is of interest to tourist traffic, particularly people travelling to airports, or other destinations where arriving later than intended could have significant implications.

Reliability is the difference between the typical travel time, allowing for average peak period delays, and the observed travel time. This measures the amount of variation due to unexpected variations or unplanned events. Like delay, it is measured in seconds per vehicle mile. It is a concern for most drivers, but particularly affects just-in-time freight traffic and other strategic journeys.

On the A1 between Peterborough and Blyth, the average peak period delay is less than 30 seconds pvpm in both morning and afternoon peaks, and is below 5 seconds in many parts of this stretch. However, interested parties have identified congestion at junctions, including the cross-routes but also queuing at slip roads. Reliability is generally below 3 seconds pvpm, but interested parties have concerns about the impact of incidents and the availability of diversionary routes.

On the A1(M) and A1 from the M18 to Darrington, the average peak period delay is less than 30 seconds pvpm in both peak periods along nearly all of this stretch. However, high traffic volumes mean that total delays are high. Reliability exceeds 5 seconds pvpm on parts of this stretch. Interested parties have highlighted congestion on this section, with the A1(M) / M18 junction being a particular point of delay. Delays on this stretch affect access to the area's key economic centres as well as long-distance traffic.

On the M11 the average peak period delay is generally less than 30 seconds pvpm in both morning and afternoon peaks, and is below 5 seconds pvpm in some areas. However, interested parties refer to the peak period congestion on the sections around Cambridge and from the M25 to Harlow. These also see high levels of total delay (the difference between the average peak period travel time and the speed limit travel time, totalled up for all journeys on that NTIS link) taking traffic volumes into account. Interested parties have raised concerns about the impact of heavy goods vehicles on the steeply-graded section between Junctions 8 and 9. Reliability is generally below 3 seconds pvpm.

Seasonal delay varies across the route. It exceeds 50 seconds pvpm on:

- the A1(M) northbound between Junctions 4 (A414) and 7 (A602)
- some of the approaches to the roundabouts on the A1 at Biggleswade, Sandy, Black Cat and Buckden
- the A1 northbound between Peterborough and Stamford, and southbound approaching Newark
- much of the A1(M) and A1 from Blyth to the M62
- the M11 southbound between Junctions 10 (A505) and 9 (A11 merge)
- parts of the M11 around Cambridge, between Junctions 11 (A10) and 13 (A428)

National Highways has a suite of five regional traffic models (RTMs) covering England's strategic road network. The models allow us to identify future performance and delay on the network, assisting with the development of the route strategies. The RTM models use projected growth, expected trends and changes to the network (including National Highways' RIS2 schemes) to forecast the performance of the network in 2031.

Considering the projected growth in traffic in future years adding a significant number of new journeys on to the network, the route is likely to see increased congestion in a number of areas. By 2031, delays are expected to exceed 30 seconds pvpm in the morning peak on further sections of the route, including the A1(M) northbound between Junctions 1 and 2, the A1 southbound between Sandy and Biggleswade, parts of the A1(M) around Doncaster, and on the M11 southbound between Junctions 14 and 12.

Figure 16 (showing the 2019 Average morning peak delay) does not include the impacts of RIS1 and RIS2 schemes. Figure 17 (2031 Forecast morning peak delay) includes the impacts of those schemes.

Interested parties highlighted inconsistent standards between sections of the A1 and A1(M) and saw opportunities to upgrade some sections to the standards seen on others. They also had concerns about issues on the A1 also affecting journeys that cross the A1 at its junctions, and saw opportunities to better coordinate planned closures and driver communications across networks.

In its Strategic transport plan: *Fairer, Greener, Stronger*[35], Midlands Connect has identified eleven priority locations for investment during the third road period (2025-2030) and onwards where the SRN needs to 'work harder'. The priority location identified on this route is the A1/A52 junction at Grantham.

Key challenges

- Current peak-period congestion on parts of the route
- Reliability issues on parts of the route, with concerns about the impact of incidents and diversionary routes
- Seasonal peak delays on certain parts of the route
- Forecast growth leading to increased congestion in a number of areas

35 Midlands Connect (April 2022) *Fairer, greener, stronger: a Strategic Transport Plan for the Midlands.* https://www.midlandsconnect.uk/strategy

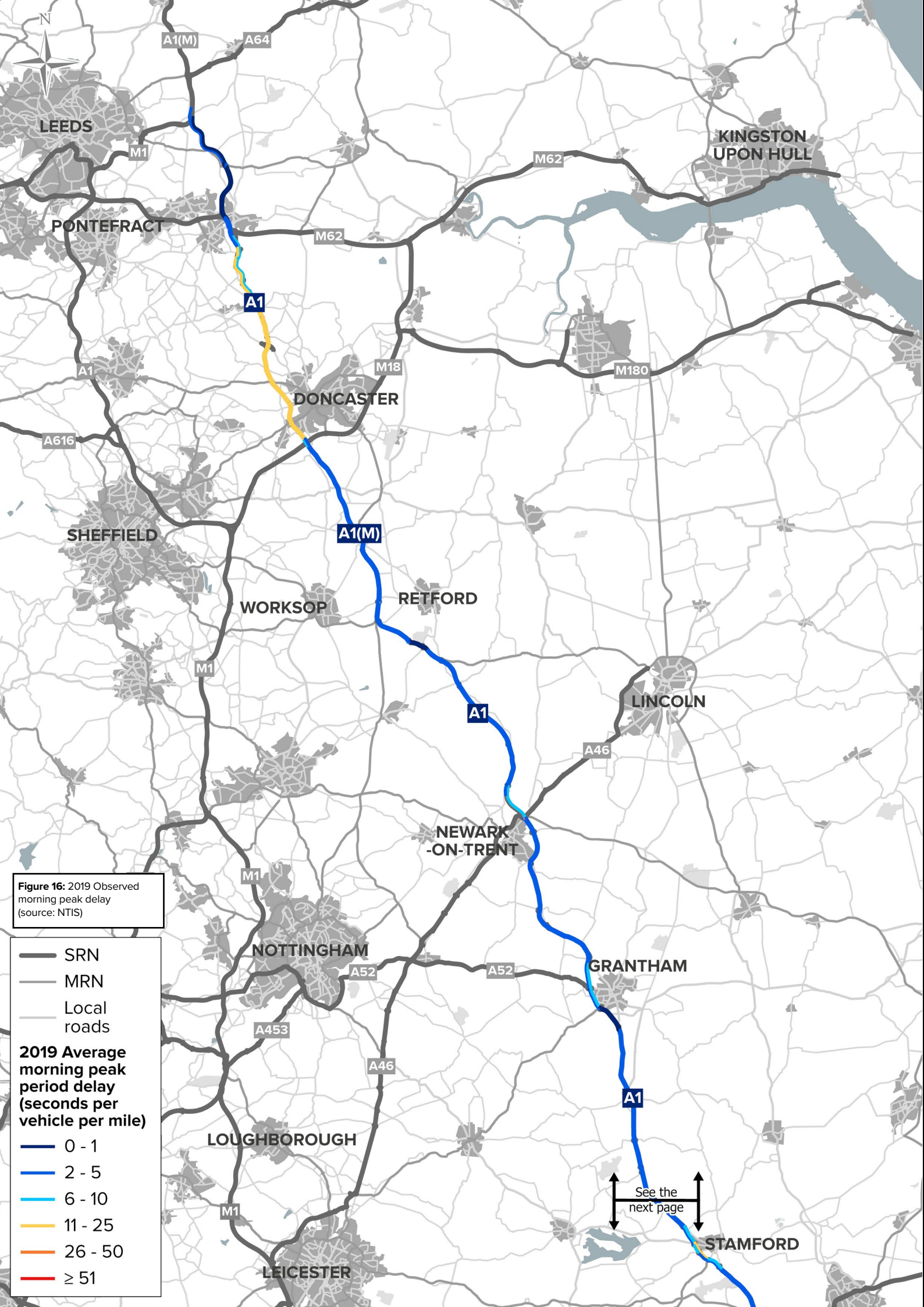
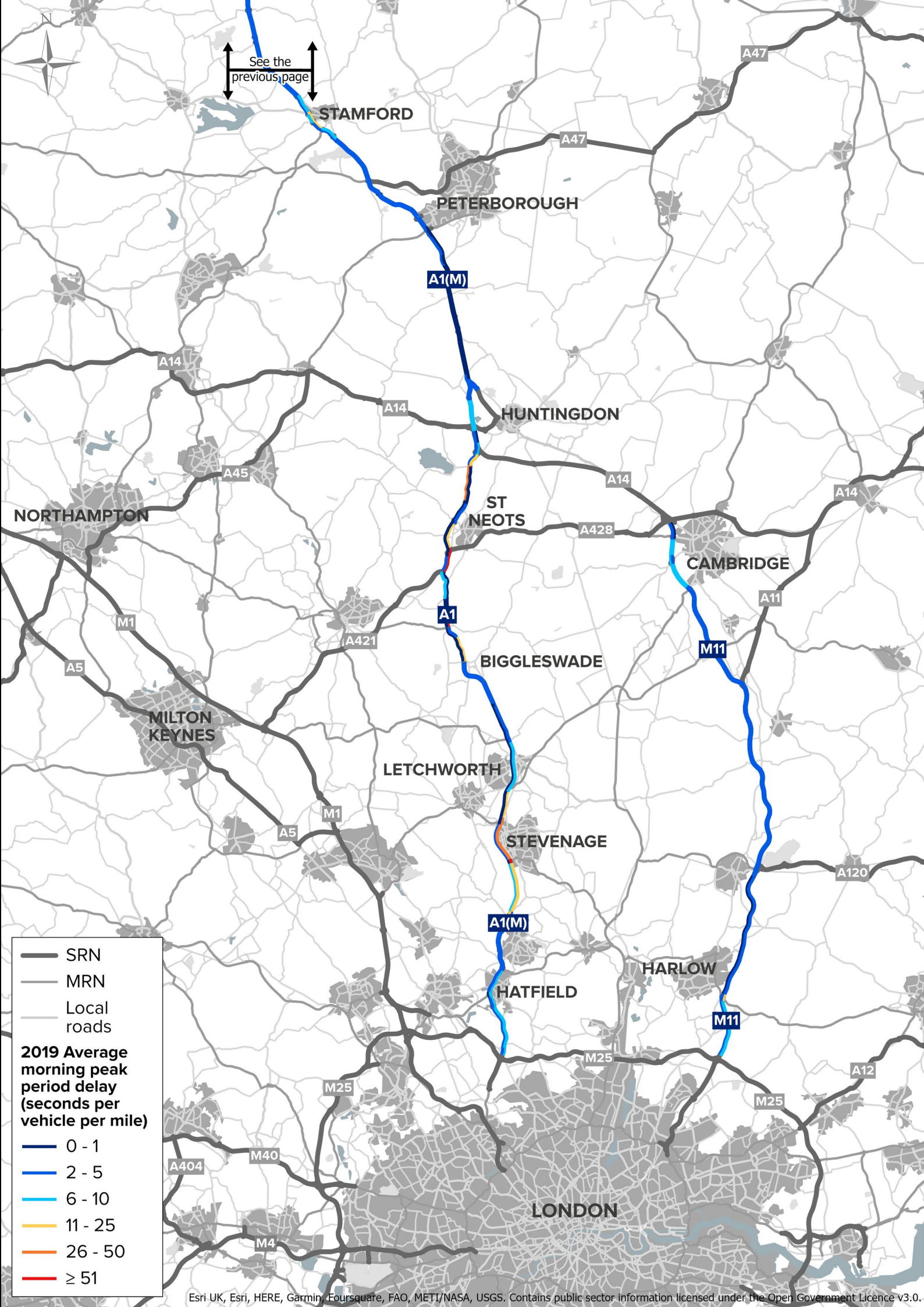


Figure 16: 2019 Observed morning peak delay (source: NTIS)



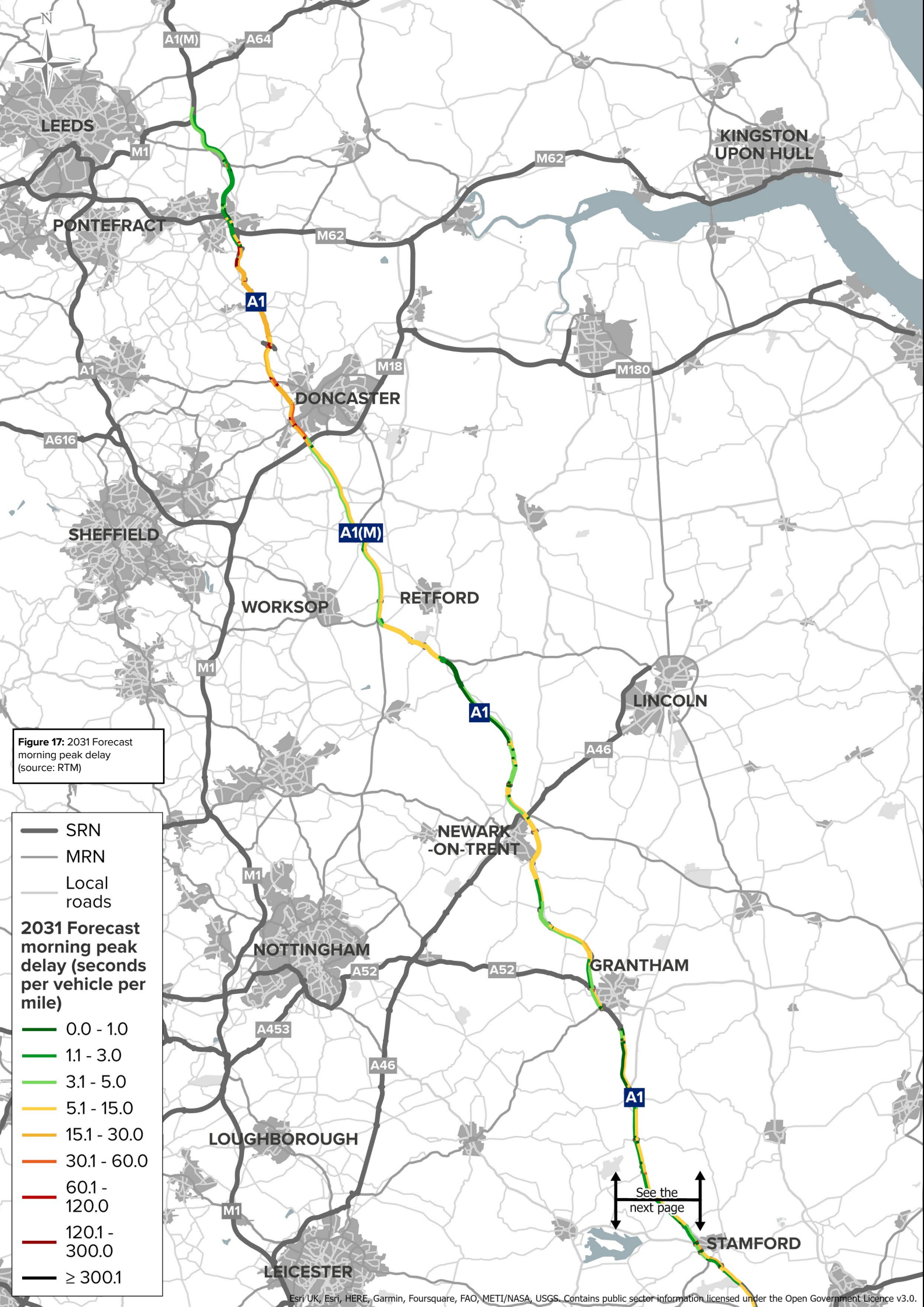
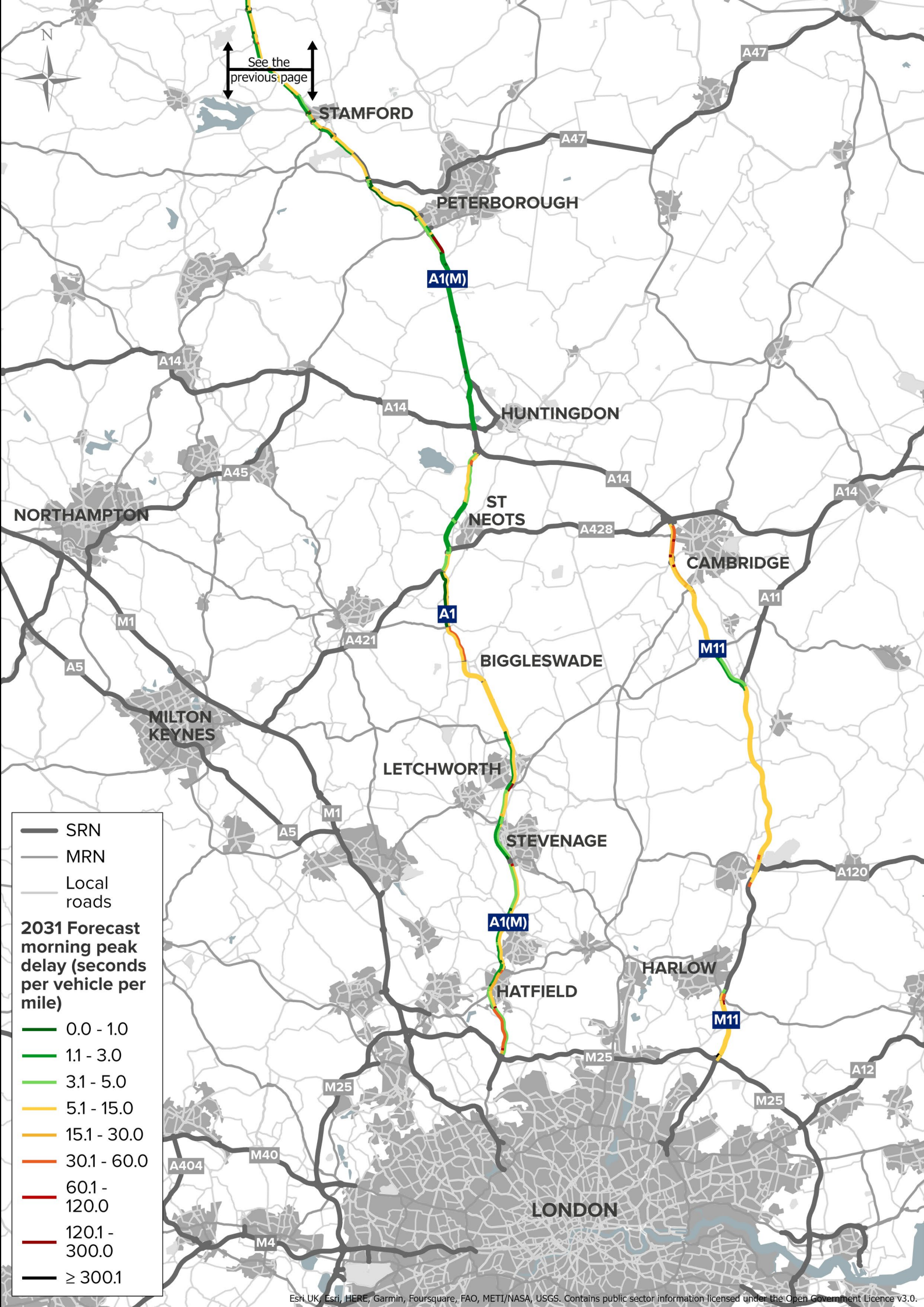


Figure 17: 2031 Forecast morning peak delay (source: RTM)



3. Improved environmental outcomes

Climate change is affecting society as a whole, and the transport sector is no exception. As the government-owned company tasked with building and maintaining the strategic road network, we need to show both how we can help tackle the causes of climate change and how we are preparing for a changing climate. In 2021 we published our *Net zero highways plan*[36] to show how we will meet the target of net zero greenhouse gas emissions.

The latest climate projections from the Met Office have helped us to understand how the climate is changing, including that summers will on average be hotter and drier, while winters will be milder and wetter and critically, that extreme weather will become more common. We have also seen, from reports such as the *Climate Change Committee's*[37] third and most recent independent assessment of climate risk, that there are key risks from a changing climate for infrastructure, such as risks to bridges from flooding and erosion and risks to subterranean and surface infrastructure from subsidence.

We are committed to net zero carbon construction by 2040 and net zero carbon travel by 2050. This will involve significant changes to the way we build and manage our network, including in the London to Leeds route. We will need to consider better integration with other transport modes and how to support the transition to electric cars and zero carbon heavy goods vehicles.

The main environmental sensitivities associated with the route are the impacts on local communities where people live alongside or near it.

The main concentrations of receptors which may experience higher noise levels within 300 metres are:

- on the A1(M) from Junctions 3 (A414) to 6 (Welwyn north) and at Baldock
- on the A1(M) from Junctions 34 (Blyth) to 37 (A635)

Air quality describes how polluted the air we breathe is. Poor air quality can cause both short-term and long-term effects on the health of humans and other living beings. The amount of air pollution depends on the concentrations of different substances in the atmosphere, such as sulphur dioxide, oxides of nitrogen, and particulate matter. In the UK, the concentrations of these pollutants are regulated and regularly monitored. If a local authority identifies any locations within its boundaries where targets are not being achieved, it must declare an Air Quality Management Area (AQMA) and put together a plan to improve air quality in that area.

While noise is often an inevitable consequence of societal activities, it can have serious implications for human health, quality of life, economic prosperity and the natural environment. Elevated levels of noise, particularly from traffic, can be associated with heart attacks, strokes and hearing impairment, as well as sleep disturbance and annoyance. While there's no legal limit to road noise, environmental noise regulations in the UK require regular noise mapping and the creation of action plans for Noise Important Areas (areas exposed to the highest levels of noise).

Severance is where transport infrastructure or motorised traffic passes through settlements and acts as a physical or psychological barrier, limiting people's ability or desire to move through that area. This can reduce accessibility to key services, and damage local social networks and community cohesion.

36 National Highways (2021) *Net zero highways: our 2030 / 2040 / 2050 plan.* https://nationalhighways.co.uk/media/eispcjem/net-zero-highways-our-2030-2040-2050-plan.pdf

37 Climate Change Committee (June 2021) *Independent Assessment of UK Climate Risk.* https://www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/

Noise Important Areas (NIAs) for roads are based on the Department for Environment, Food and Rural Affairs (DEFRA) strategic noise maps results and have been produced in line with the requirements set out in the noise action plans. There are NIAs throughout the route. Only limited sections, such as the northern part of the M11, have few or no NIAs.

The main concentrations of receptors which may be more likely to experience adverse air quality impacts within 100 metres are on:

- sections of the A1 and A1(M) around the series of towns from Hatfield to Alconbury
- the A1 from Alwalton to Stamford, and at Grantham, Newark and Tuxford
- the A1(M) at Tickhill and around Doncaster
- the M11 at Harlow

Several Air Quality Management Areas are particularly close to the route:

- A1 at Sandy, where interested parties also expressed concerns over emissions
- A1 west of Doncaster
- A1 / A1(M) Redhouse to M62
- M11 at Junctions 13-14 west of Cambridge

Risk of flooding from surface water is the potential for surface water flooding which "happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead."[38] Locations along this route most at risk of flooding from surface water include:

- the M11 at Ugley and Harlow
- the A1(M) at Hatfield and Letchworth
- the A1 at Newark
- the A1(M) at Tickhill and Junction 35 (M18)

Where possible we will seek to protect environmentally important locations and reduce air quality and noise impacts on communities served by the route

Interested parties have expressed concerns over severance at certain locations, particularly at Beeston and Seddington which straddle the A1, at Sandy due to traffic volumes, and at certain junctions with limited provision for active travel, such as M11 Junction 8. Some sections of the A1 mainline are used by pedestrians and cyclists for local journeys. At other locations throughout the route, interested parties have highlighted opportunities to improve active travel facilities for journeys that cross the route, including signed walking and cycling routes and access to developments around junctions.

Key challenges

- Maintaining and protecting areas of outstanding natural beauty, areas with environmental designations and cultural heritage
- Minimising greenhouse gas emissions
- Building resilience to future climate change
- Receptors which may experience higher noise levels within 300 metres, particularly on certain sections of the A1(M)
- Receptors which may be more likely to experience adverse air quality impacts within 100 metres on certain parts of the route
- Severance impacts at certain locations

38 Environment Agency *Flood risk maps for surface water: how to use the map* website. https://www.gov.uk/government/publications/flood-risk-maps-for-surface-water-how-to-use-the-map#:~:text=Surface%20water%20flooding%20happens%20when,of%20lead%20local%20flood%20authorities. (The data takes account of the topography along the route.)

4. Growing the economy

In order to understand the economic and housing growth aspirations of the area along the route we have considered key growth locations, such as those held in local plans and Freeports.

The main population growth areas along the route are expected to be in the region north of London (particularly Cambridge, St Neots and northern Hertfordshire), Peterborough, around Grantham and Newark (also linking to growth on A46 corridor to Lincoln), and Pontefract.

The main employment growth areas are the Stevenage to Hatfield corridor, Huntingdon, Peterborough, Newark, Doncaster, Harlow, London Stansted Airport and Cambridge.

The route provides strategic access to the Cambridge area knowledge economy and the housing growth area at Harlow. Other major growth areas identified in Local Plans along the route include:

- Baldock, Stevenage and Welwyn Garden City
- St Neots
- The Huntingdon area, including Alconbury
- Peterborough
- Grantham
- Newark
- Castleford / Knottingley
- Bishop's Stortford

The route directly serves London Stansted Airport, as well as Cambridge Airport via connecting routes. It also contributes to strategic access to other London airports, and the South-East, Haven and Humber ports and Freeports.

The M11 is a spine of the London-Cambridge-King's Lynn 'UK Innovation' strategic corridor identified by Transport East.

The strategic road network has a critical economic function in supporting national and cross-border connectivity and areas with high levels of deprivation

There are concentrations of deprivation[39] at a number of locations along the route, including around Doncaster and Castleford despite the high strategic connectivity offered by the strategic road network (SRN) in this area.

The index of priority places for Levelling Up Fund places local authorities into categories 1, 2 or 3, depending on their identified level of need, with category 1 representing places deemed in most need of investment through this Fund[40]. The route serves areas in all three categories, including category 1 areas from Newark northwards, around Peterborough and at Harlow.

The route serves a range of visitor attractions throughout its length. These include rural heritage and landscape attractions along the A1 and A1(M), such as Knebworth House, Belton House, Clumber Park and Brodsworth Hall. They also include the cluster of visitor attractions in and around Cambridge.

There are freight distribution centres throughout the route, with particular concentrations at Peterborough (via the A1139) and Doncaster (via the M18). The route includes several areas of medium or high economic reliance on the SRN, including Central Bedfordshire, the section through Nottinghamshire and Lincolnshire, South Yorkshire, and Wakefield. It also serves the cluster of existing and proposed rail freight interchanges around Doncaster and Knottingley.

39 Ministry of Housing, Communities & Local Government (September 2019) *English indices of deprivation 2019.* https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

40 Department for Levelling Up, Housing and Communities (March 2022) *Levelling Up Fund Round 2: updates to the Index of Priority Places.* https://www.gov.uk/government/publications/levelling-up-fund-round-2-updates-to-the-index-of-priority-places

The route has a key role in serving long-distance traffic, particularly freight, and there is a need to maintain this role. Interested parties have identified the need for additional lorry parking and driver welfare services at rest stops.

In Nottinghamshire and Lincolnshire, the regional economy relies heavily on the SRN and the A1 is a key spine. There are aspirations for growth in the freight-reliant economic sectors such as agri-tech, as well as the other growth sites.

Further south, interested parties consider that the A1 needs to support overall growth and particularly planned growth sites. They were concerned that the performance of the Baldock to Huntingdon section of the A1 would affect the region's growth aspirations.

Interested parties also consider that the M11 needs to support the continued growth of the Cambridge sub-region, with its high-tech and knowledge economy, along with strategic access to London Stansted Airport and other developments around M11 Junction 8.

The route has benefited from the A14 Huntingdon to Cambridge scheme that addressed a key bottleneck for strategic freight traffic between the South-East or Haven ports and the Midlands.

Key challenges

- The route's role in long-distance and other strategic journeys, particularly for freight
- Supporting the many housing and employment growth areas along the route
- Supporting strategic access to the Cambridge area knowledge economy
- The heavily SRN-reliant regional economy in the East Midlands
- Concentrations of deprivation at a number of locations along the route

5. Managing and planning the SRN for the future

Maintaining the strategic road network

We deliver a comprehensive programme of maintenance to keep our assets in the right condition to provide our customers with the right level of service; ensuring that the road network remains safe and fully open for use. We collect data on the condition of all of our assets so that our teams of specialist engineers can fully understand their current condition and identify the optimum time to intervene, maintaining the asset and replacing parts before they fail and impact customer journeys.

Our asset inspections to collect much needed condition data are undertaken through a number of methods - survey vehicles collecting road surface condition for the whole of the network every year right through to structures inspections, where we undertake over 23,000 inspections of individual structures every two years. The majority of our asset routine maintenance activities and the replacement of thousands of asset components as they near end of life are undertaken at night to minimise customer disruption, meaning that most of this work is never seen.

Road surface

The measure for road surface condition has been updated for 2022/23 onwards. The condition is reported as one of our Key Performance Indicators and shows the condition of all available lanes of the main carriageway (excluding the Alconbury to Peterborough section of the A1(M), which is managed by a Design-Build-Finance-Operate (DBFO) operator) based on three elements of the road surface condition namely - the levels of surface rutting (caused by wheel tracks being formed in the surfacing), skid resistance (how slippery the road is) and longitudinal profile (how bumpy the road feels) with a target of 96.2% or more in good condition. At the time of publication, the road surface had a score of 96.7% in good condition, thereby meeting the national surfacing condition target.

This route consists of approximately 1,450 lane-kilometres of road surfacing. The surface condition across the route is considered to be sound, with 96% of pavement asset not requiring investigation for possible maintenance.

Bridges and structures

There are 636 structures across the route, including bridges and large culverts. According to an analysis of current data, 89% of our structures are in very good or good condition. By carrying out inspections of each individual structure every two years, we identify any defects that may require maintenance, thereby helping to ensure that structural components are replaced before they fail.

Figure 18 shows how investment in this route has improved the average condition scores of structures, since 2006. The average condition score is derived from asset inspections on structural components, accounting for the relative importance and size of each component. If no maintenance or renewals were planned, the scores would be expected to decline from 100 (perfect) as the structures deteriorate over time. We have a rolling renewals programme to replace asset components identified in our inspection programme, improving the structure condition to ensure all structures remain in a safe condition and fully open for use.

We have identified significant structures renewals for RIS3, and these schemes affect 4 structures in this route.

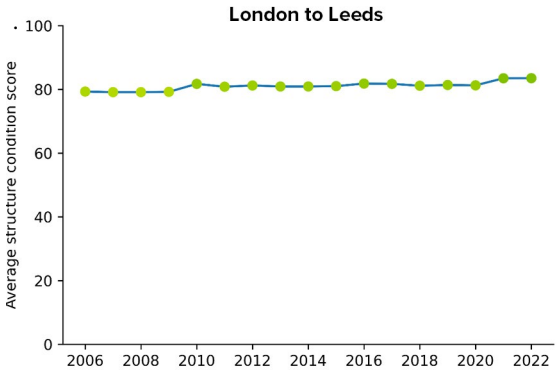


Figure 18: Average condition scores of structures, since 2006

This route has only one tunnel, the Hatfield tunnel, which opened to traffic in 1984. The management of tunnel assets vary from the management of other structures in two ways. Firstly, the assets within a tunnel have a wide variety of design lives, from 120 years for the tunnel structure, to far less for the technology systems for operations and fire life safety. Secondly, tunnel systems require 24/7 control by our operations centres, to maintain safe operation.

Drainage

Drainage assets are represented by both linear assets (for example underground pipes, channels, ditches, drains) and nonlinear assets (for example gullies and chambers). At national level, 90% of the drainage assets are in good structural condition and 87% are in good service condition.

Geotechnical features

The geotechnical asset, comprising over 12,000 kilometres of earthworks embankments and cuttings carrying the road network is assessed through a programme of inspections and rated for its ability to provide the right level of safe functionality. The condition assessment of this asset is that 99.61% is in good condition to continue to function correctly. We use the inspection surveys to identify where any of our geotechnical features may require maintenance now or in the future, to ensure they are never at risk of failure.

Future developments

We have been transforming our approach to maintenance through our Operational Excellence and Asset Management Transformation Programmes. Bringing our key asset maintenance decision making and planning activities back in-house so that our own staff are responsible for planning maintenance activities, along with improving the consistency of our end to end maintenance and asset replacement programmes will bring significant benefits.

Our asset management transformation also includes the improved analysis to identify the investment required on the strategic road network during the third road period (2025-2030). The business case will provide evidence to support future maintenance investment, clearly articulating the costs and benefits of delivering an effective maintenance and asset replacement programme.

Operations

We are establishing a nationally consistent approach to the management of our operational capability through our Operational Excellence change programme. This will deepen our understanding of how our interventions impact on the performance of the network and on the journeys of our customers. We are using the latest analytical software to process traffic data and gain insight into:

- How our operational services can improve safety and provide security to road users
- How the attendance of a traffic officer has an impact on incident durations
- How information provided by National Highways can benefit road users who plan their journeys beforehand and then while on their journeys

By better understanding our current operational performance, we can create a baseline from which we can identify opportunities for improvement.

Key challenges

- Contributing toward the national target of 96.2% or more of carriageway being in good condition
- Maintaining the good condition of the strategic road network's geotechnical assets
- Ensuring that drainage assets are maintained so that their good structural and service conditions can be upheld

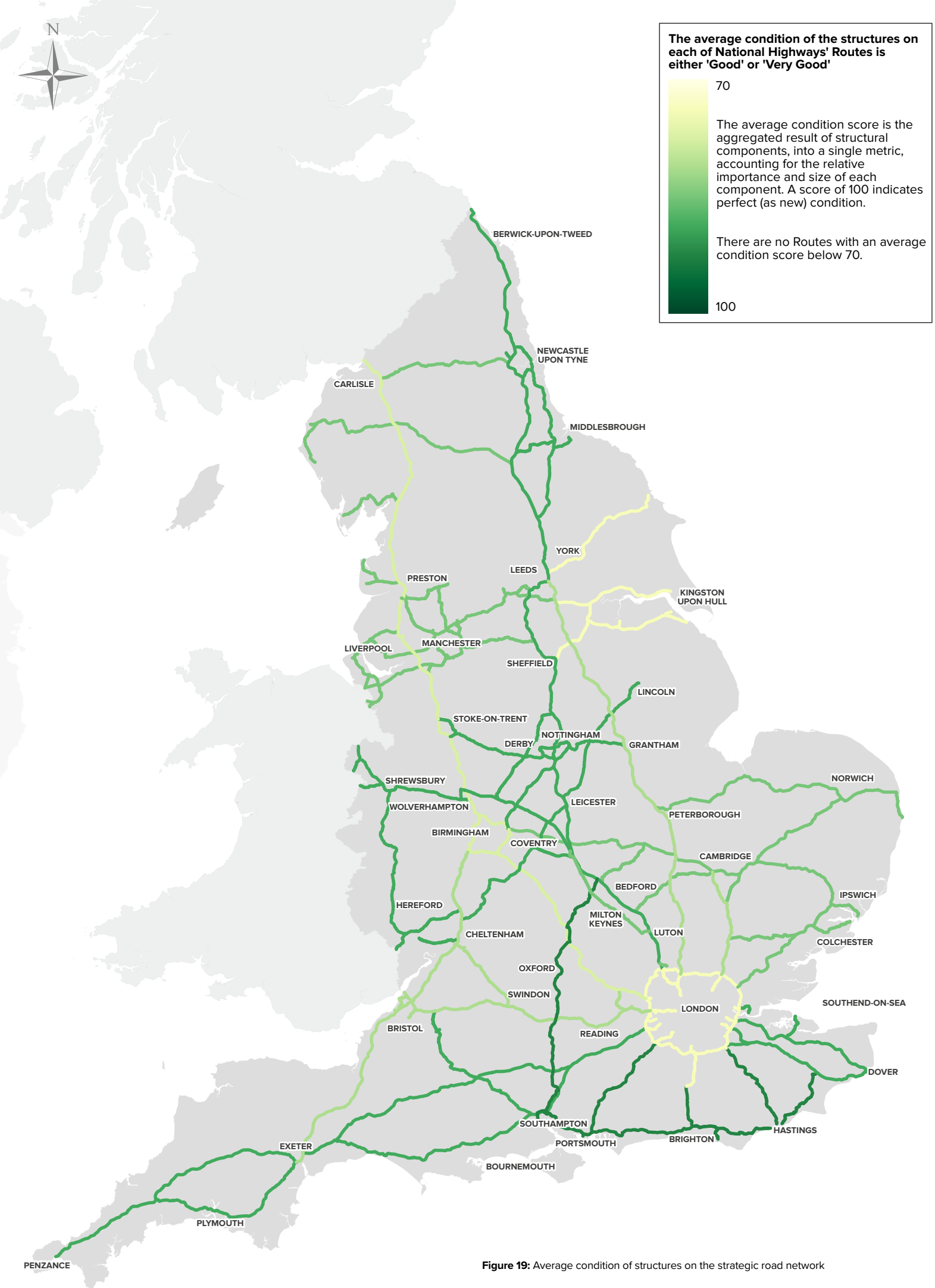


Figure 19: Average condition of structures on the strategic road network

6. A technology-enabled network

Facilities to improve journey quality and network efficiency on the strategic road network (SRN) are of key concern to our interested parties, road users and communities. High quality travel information before and during travel helps to:

- reduce day-to-day delays and improve reliability of the SRN
- minimise the adverse impacts of incidents
- improve the quality of journey experience
- allow people to make more informed travel choices including about when and how to travel

The route currently has limited technology for traffic management, incident response and driver information. Interested parties highlight the importance of resilience and predictable journey times, particularly for freight, and the need to be able to make routing choices between parallel options (such as the A1 and A1(M) corridor or the M1 corridor) at an early enough stage of the journey.

There are charging facilities for electric vehicles at intervals throughout route, generally associated with service areas. The number of charging points is, however, relatively small in relation to the volume of traffic on the route.

The move towards ending the sale of new petrol and diesel cars by 2030, and the transition to electric vehicles for freight transport, will require a greater number of charging points in future.

We will support improved communications and facilities for all

The Government's 2022 electric vehicle infrastructure strategy[41]sets out a vision for 2030 where charging infrastructure will be removed as both a perceived and real barrier to the adoption of electric vehicles. The Strategy outlines the intention to accelerate the rollout of high-powered chargers on the SRN through the £950m rapid charging fund[42], aimed at increasing provision of electric vehicle charging.

Key challenges

- Information for road users (before and during the journey)
- Provision of charging facilities for electric vehicles

41 Department for Transport *UK electric vehicle infrastructure strategy* website: https://www.gov.uk/government/publications/uk-electric-vehicle-infrastructure-strategy
42 Office for Zero Emission Vehicles *Rapid charging fund* website: https://www.gov.uk/guidance/rapid-charging-fund

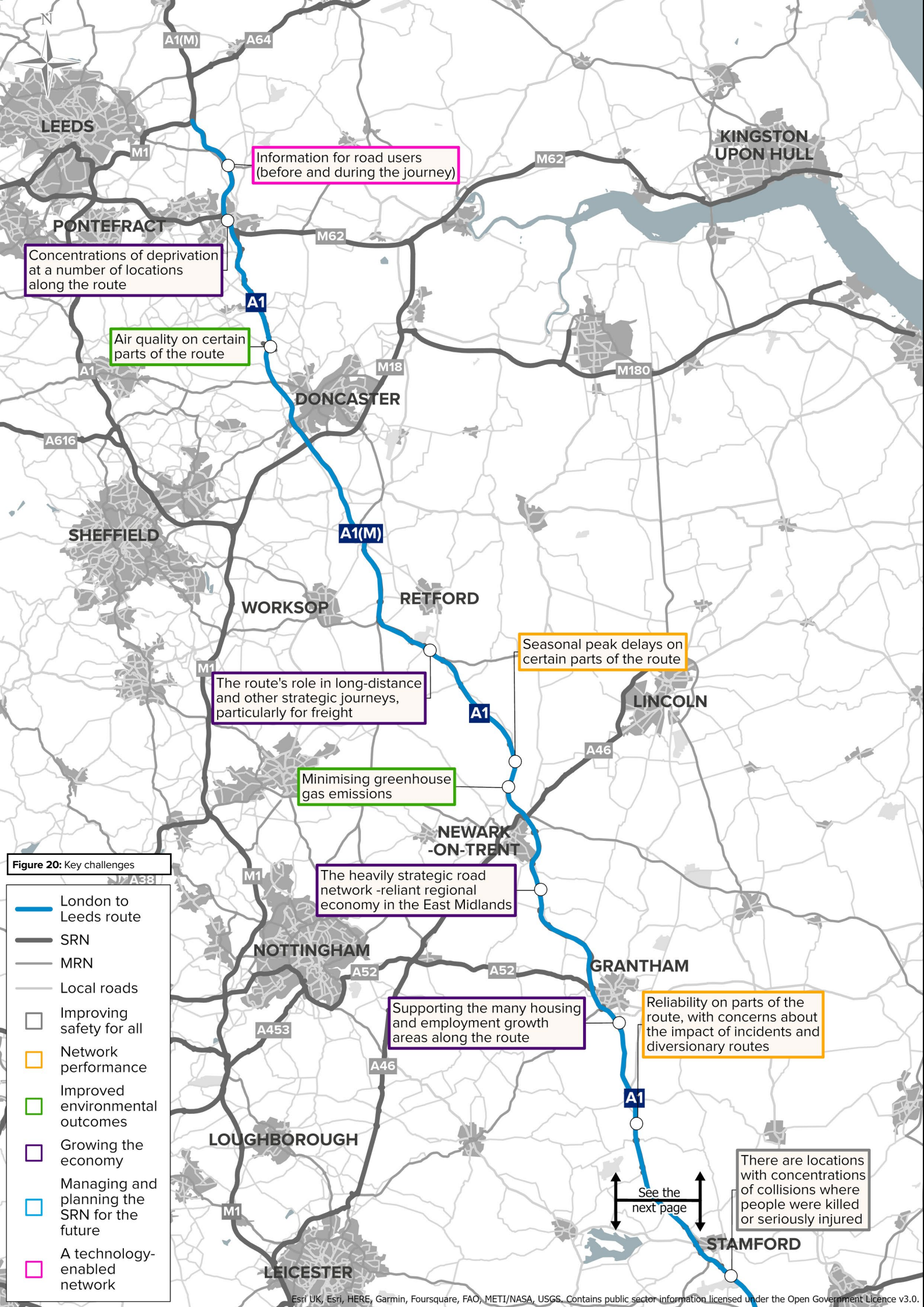
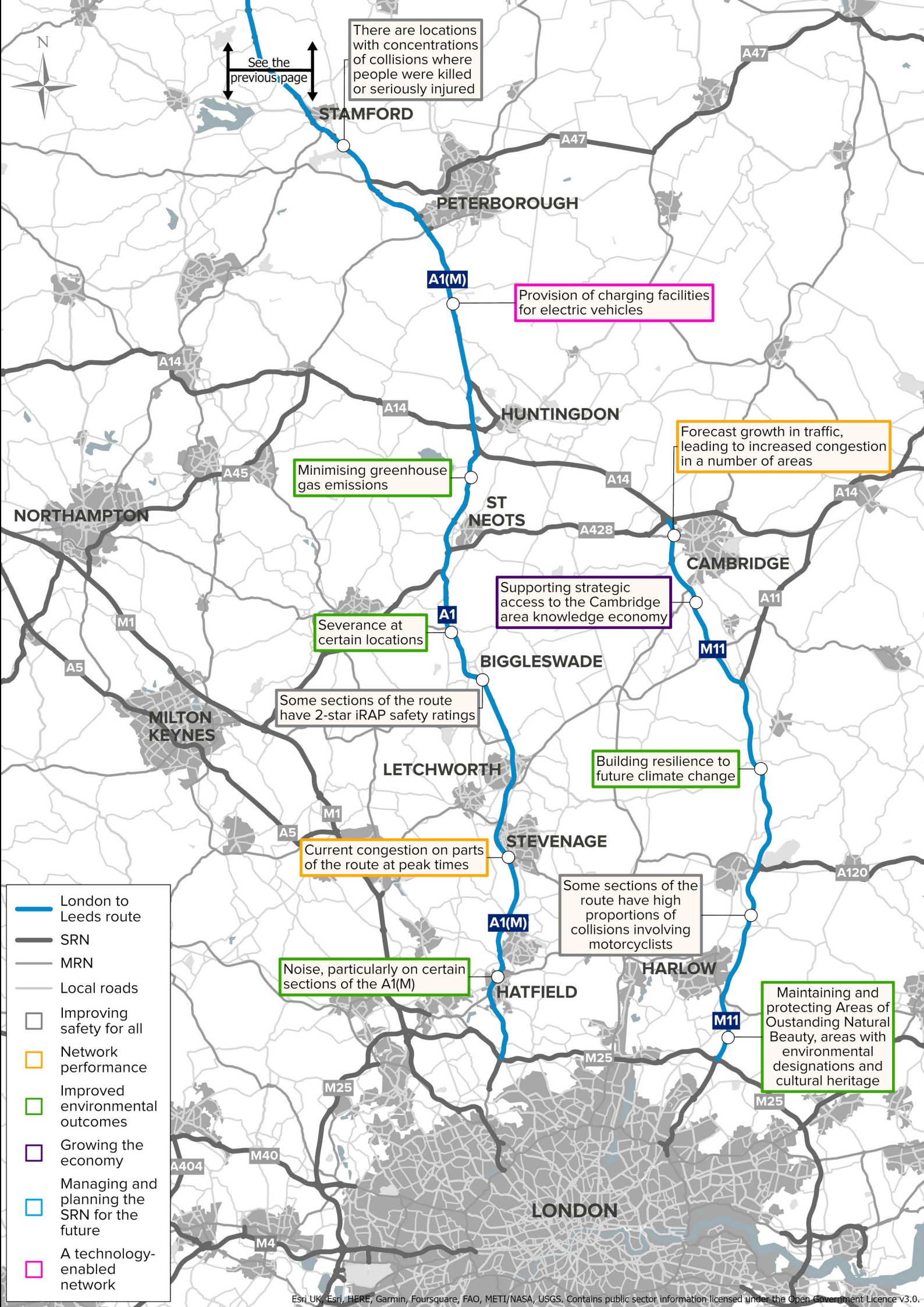


Figure 20: Key challenges



Our ambition for the route

06 Initial route objectives

We want to provide safer and more reliable journeys for all those who use or live alongside our network on the London to Leeds route, and help the region achieve its economic and housing growth ambitions. Based on our engagement and data analysis, we have defined six route objectives for the area.

We developed the route objectives based on:

- feedback from customers and neighbours outlined in Chapter 3
- opportunities to collaborate with other network operators, outlined in Chapter 4
- constraints and challenges, as highlighted in Chapter 5
- how best to contribute to the Department for Transport's (DfT's) six strategic objectives

Each route strategy includes a series of specific route-based objectives. These objectives, informed by extensive data analysis and engagement with customers and neighbours, set out our ambition for each route. Although route objectives are route-specific, they should also be considered in the context of our commitments and ambitions for the whole network, as per our Licence agreement. This means that, while we may identify certain locations within a route for further consideration, we will seek to address these locations in line with our ongoing commitment to achieving our safety, environmental and technology obligations across the strategic road network.

It should be noted that there is overlap between the objectives, and we recognise they cannot be considered in isolation from each other. They should be considered alongside our asset plan.

The route objectives, their supporting narratives, and locations for further consideration will together inform the development of the Road investment strategy (RIS). They do not represent a commitment to road-based interventions but are intended to enable multimodal interventions to be explored as part of later study phases. It should be noted that the route objectives do not signify an assurance of investment in a particular route, nor do they remove the need to follow statutory processes.

As these are initial route objectives subject to wider feedback, we have not at this stage set out in detail how we will measure progress against them. Understanding how interventions and initiatives have addressed the challenges identified is a complex and long-term task and the approach to it will need to be devised alongside the wider performance specification for the third road period (2025-2030). We expect to set out our approach to this more clearly in the finalised route strategy overview reports to be published alongside our *Strategic business plan* and *Delivery plan* later in this second road period (2020-2025).

Route objectives and DfT's strategic objectives

In Figure 21 we illustrate the six route objectives on our route map and, in Table 1, we show how they contribute to the Government's strategic objectives for our network as a whole.

Table 1: How the route objectives map to the DfT's strategic objectives

	Ref	Route objective
	**A**	**Improve safety for all:** provide safe journeys on the A1, A1(M) and M11, to benefit road users and local communities
	**B**	**Support reliable connectivity for the UK:** support reliable strategic connectivity for the UK for people and goods between the north, East Midlands, eastern and south-east England (including their ports and airports), promoting the UK and regional economies
	**C**	**Support the efficient movement of goods and people:** improve the reliability of freight and coach journeys along the A1, A1(M) and M11, alongside improved parking and driver welfare facilities to support both the local, regional and national economy
	**D**	**Support sustainable economic and housing growth:** support sustainable economic and housing growth, particularly in growth areas and other economic clusters in Yorkshire, Newark, Grantham, Peterborough, Cambridgeshire, Hertfordshire and Essex
	**E**	**Be a better neighbour:** be a better neighbour by safeguarding the environment and reducing the impact of adverse air quality, noise and severance on local communities along the A1, A1(M) and M11, in areas such as Sandy, Beeston and Seddington and around Doncaster
	**F**	**Better informed drivers:** improve communications to better inform drivers and improve their end-to-end journey experience for journeys involving or crossing the A1, A1(M) and M11, to allow drivers to make informed route choices

DfT's strategic objectives for our route

Improving safety for all	Network performance	Improved environmental outcomes	Growing the economy	Managing and planning the SRN for the future	A technology-enabled network
✓					
	✓		✓		✓
	✓		✓		✓
	✓		✓		
		✓			
	✓				✓

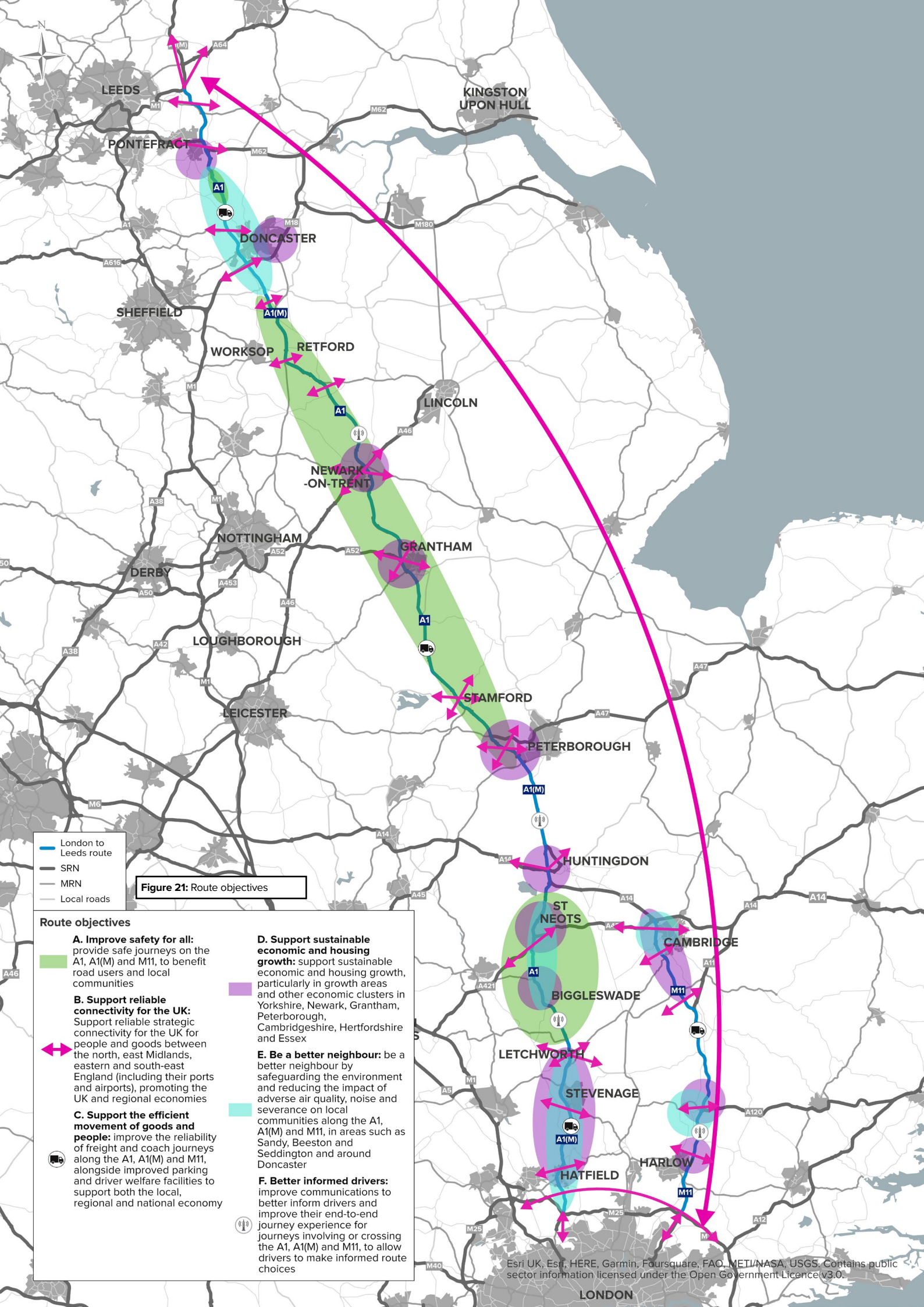


Figure 21: Route objectives

Route objectives

A. Improve safety for all: provide safe journeys on the A1, A1(M) and M11, to benefit road users and local communities

B. Support reliable connectivity for the UK: Support reliable strategic connectivity for the UK for people and goods between the north, east Midlands, eastern and south-east England (including their ports and airports), promoting the UK and regional economies

C. Support the efficient movement of goods and people: improve the reliability of freight and coach journeys along the A1, A1(M) and M11, alongside improved parking and driver welfare facilities to support both the local, regional and national economy

D. Support sustainable economic and housing growth: support sustainable economic and housing growth, particularly in growth areas and other economic clusters in Yorkshire, Newark, Grantham, Peterborough, Cambridgeshire, Hertfordshire and Essex

E. Be a better neighbour: be a better neighbour by safeguarding the environment and reducing the impact of adverse air quality, noise and severance on local communities along the A1, A1(M) and M11, in areas such as Sandy, Beeston and Seddington and around Doncaster

F. Better informed drivers: improve communications to better inform drivers and improve their end-to-end journey experience for journeys involving or crossing the A1, A1(M) and M11, to allow drivers to make informed route choices

A. Improve safety for all

Objective

Provide safe journeys on the A1, A1(M) and M11, to benefit road users and local communities

Context

Improving the safety of the roads and minimising collision rates is a key consideration for all our routes. As described in Chapter 5, overall the route has a good safety record but some parts have safety issues.

Many of the safety issues on the London to Leeds route, as shown in the data and identified by interested parties, relate to the three non-motorway sections of the A1.

Between Baldock and Huntingdon, the route quality is inconsistent, and much of it is poor in comparison to nearby lengths of the A1(M). This section has the last remaining at-grade roundabouts on the route. There are numerous local junctions, property accesses and breaks in the central reservation. Interested parties have raised concerns about this overall quality and with specific collision locations.

On the Peterborough to Blyth section, interested parties have raised safety concerns about the overall quality and nature of the road, the impact of heavy goods vehicle behaviour on this predominantly two-lane stretch, and a number of collision locations.

Particular issues include breaks in the central reservation and the geometry of slip roads. Interested parties have raised specific concerns over junction geometry on the Peterborough to Stamford section.

The section from Redhouse to Darrington also has safety concerns raised by interested parties, associated with accesses, lay-bys and junctions.

Elsewhere on the route, safety issues have been raised on certain parts of the A1(M), and on the M11 between Junctions 6 and 9.

Interested parties also highlighted the impact of heavy goods vehicles and their overtaking behaviour on some dual two-lane sections of the route.

Our network considerations

Some sections of the route have a 2-star standard in the International Road Assessment Programme (iRAP) Star Ratings. These are:

- the A1 between Baldock and Wyboston
- short sections on the A1 near Buckden, Water Newton, Woolfox and Great Ponton
- a short section on the A1(M) northbound at the merge with the M1
- a short section on the M11 northbound Junction 8A slip road

STATS19 data show concentrations of collisions where people were killed or seriously injured on:

- parts of the A1(M) around Stevenage
- sections of the A1 between Letchworth and Biggleswade, near Stamford, near Grantham, at Newark and near Retford
- part of the A1(M) and A1 near Adwick-le-Street
- the M11 between junctions 6 (M25) and 9 (A11)

Although the Road Safety Foundation Crash Risk Mapping show much of the route is in the low-risk (safest) category, some sections of the A1 are low-medium risk:

- Baldock to Black Cat
- Peterborough to Newark
- Redhouse to Darrington

The highest collision density areas on the route are:

- the A1 from Peterborough to Stamford
- the A1 from Redhouse to Darrington
- the M11 between Junctions 6 (M25) and 8 (Bishop's Stortford)

The collision density for motorcyclists is highest on the A1(M) and A1 between the M25 and Black Cat, and again the M11 between Junctions 6 (M25) and 8 (Bishop's Stortford). Motorcyclists are involved in a high percentage of the collisions on:

- the A1(M) and A1 between the M25 and Black Cat
- the A1 between Newark and Blyth
- the A1(M) between Darrington and the M1 merge

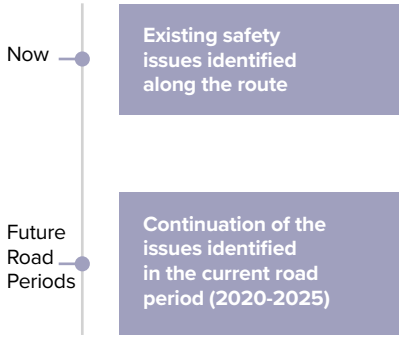
Outcomes

- Improved safety, particularly on the Baldock to Huntingdon, Peterborough to Blyth and Redbridge to Darrington non-motorway sections of the A1, and on certain parts of the A1(M) and M11

DfT's Strategic objectives

Improving safety for all

Timeframe based on the issues and constraints identified



B. Support reliable connectivity for the UK

Objective

Support reliable strategic connectivity for the UK for people and goods between the north, east Midlands, eastern and south-east England (including their ports and airports), promoting the UK and regional economies

Context

The London to Leeds route is an important strategic link, acting as a spine between the North and the South on the eastern side of the country, and connecting to the East Midlands. It also connects with strategic east-west routes such as the M18, A47 and A14. The regional economy in Nottinghamshire and Lincolnshire relies heavily on the strategic road network, including the London to Leeds route, and has aspirations for growth in its freight-reliant economic sectors such as agri-tech.

The route directly serves London Stansted Airport, as well as Cambridge Airport via connecting routes. It also contributes to strategic access to other London airports, and the south-east, Haven and Humber ports and Freeports. It also serves a large number of population and employment growth areas throughout its length.

It has an important role in supporting the distribution of goods and strategic traffic from London and the southern ports through the Midlands to Yorkshire, the Humber ports and beyond. The route could be part of the UKNET East Coast corridor recommended by the *Union Connectivity Review*[43].

Our network considerations

Several factors currently affect how it performs this strategic role. There is congestion and delays at a number of locations, particularly near large urban centres and commuter destinations in peak periods, and on some sections of the A1 that are not of motorway standard with numerous at-grade junctions and access roads to properties.

Journey time data show particular areas of delay:

- average peak period delay on the A1(M) during the morning peak southbound at Stevenage between Junctions 8 and 7, and during the afternoon peak northbound at Welwyn Garden City between Junctions 5 and 6
- unreliability between Junctions 5 and 6 at Welwyn Garden City
- average peak period delay on the approaches to the roundabouts on the A1 between Biggleswade and Huntingdon
- seasonal delay on certain parts of the route

Interested parties have also identified other delay locations and issues including:

- the Peterborough to Stamford section of the A1
- junctions on the A1 between Peterborough and Blyth, including the cross-routes but also queuing at slip roads
- the impact of incidents and the availability of diversionary routes for the A1 between Peterborough and Blyth
- the A1(M) / M18 junction
- peak period delay on the M11 around Cambridge and from the M25 to Harlow
- the impact of heavy goods vehicles on the steeply-graded section of the M11 between Junctions 8 and 9

Interested parties have concerns over the route's low level of reliability, arising from a range of factors including the delay locations, limited technology to allow drivers to choose alternative routes to avoid incidents, and the range of diversionary routes available. They saw incidents on the route as also having a detrimental impact on other roads. They also have concerns over the limited provision of services and lay-bys and have identified the need for additional lorry parking.

Interested parties also highlighted inconsistencies between sections of the A1 and A1(M) and saw opportunities to upgrade some sections to the standards seen on others.

43 Hendy, P. (November 2021) *Union Connectivity Review: Final Report.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1036027/union-connectivity-review-final-report.pdf

Projected traffic growth is likely to lead to increased delay in a number of areas, particularly:

- the A1(M) northbound between Junctions 1 and 2
- the A1 southbound between Sandy and Biggleswade
- parts of the A1(M) around Doncaster
- the M11 southbound between Junctions 14 and 12

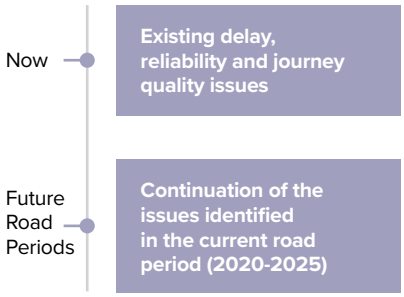
Outcomes

- Improved reliability and journey times for both strategic and local journeys along the route
- Improved journey quality (including services and rest facilities) for users, particularly freight
- Improved connectivity, consistency and resilience for strategic journeys

DfT's Strategic objectives

- Network performance
- Growing the economy
- A technology-enabled network

Timeframe based on the issues and constraints identified



C. Support the efficient movement of goods and people

Objective

Improve the reliability of freight and coach journeys along the A1, A1(M) and M11, alongside improved driver parking and welfare facilities to support both the local, regional and national economy

Context

The route's strategic role described under objective B is particularly important for freight movement. This includes supporting not only freight users located along the length of the route, but also longer-distance distribution of goods between London and the South-East, East Anglia, the Midlands, Yorkshire, the Humber and beyond. The route could be part of the UKNET East Coast corridor recommended by the *Union Connectivity Review*[44].

The A1, A1(M) and M11 particularly serve:

- freight traffic to and from the south coast, Thames, Haven, Humber, Teesside and North-East ports and Freeports
- freight traffic to London Stansted Airport, as well as Cambridge Airport via connecting routes, and contributing to strategic access to other London airports
- strategic road network-dependent sectors in the east of England and East Midlands such as agri-tech and distribution
- freight distribution centres at a range of locations along the route, such as Peterborough and Doncaster (Figure 22)

These roles are reflected in the level of freight traffic on the route. Much of the A1 and A1(M) north of Huntingdon and the M11 carries 5,000-10,000 heavy goods vehicles each day, representing around 20% of traffic on these sections.

Our network considerations

The delay, reliability and journey quality issues described under objective B also apply to this objective.

Interested parties' concerns over the limited provision of services and lay- bys particularly apply to freight traffic, and facilities for coaches and their drivers. The 2017 *National Survey of Lorry Parking*[45] showed a high level of overnight off-site parking, for example in laybys and industrial or retail parks, along the A1 through the East Midlands. It also found many truck stops along the route operating close to or above their level of capacity, including most locations between the M25 and Peterborough via the A1 / A1(M) or the M11.

In the context of a shortage of heavy goods vehicle drivers and a need to provide suitable overnight facilities, these results were seen as indicating a shortage of high-quality facilities as well as drivers preferring to use free facilities. The study also found Nottinghamshire to be a problematic location for freight crime, particularly along the A1 and in a concentration around the A1 / A46 junction.

Interested parties also highlighted the importance of freight drivers being able to make informed route choices, as described under objective F. This was seen as particularly significant for the longest north-south journeys, where there is a choice of corridors (A1 versus M1) but the decision must be made at an early stage in a journey. A similar issue applies to the choice between the M11 and A14 corridor or the A1 and A1(M) corridor for the section between the M25 and Huntingdon. Interested parties also highlighted freight journeys on the major road network in the East Midlands that cross the A1 at its junctions, for which information on potential delays at the junctions can help drivers to re-route effectively.

Other specific issues related to freight include interested parties' concerns over performance of both the A46 and the A1 (mainline and its junctions) at Newark, in relation to the growing distribution sector there (see also the Initial Overview Report for the North Midlands Route).

44 Hendy, P. (November 2021) *Union Connectivity Review: Final Report.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1036027/union-connectivity-review-final-report.pdf

45 AECOM on behalf of the Department for Transport (2018) *National Survey of Lorry Parking.* https://www.gov.uk/government/publications/national-survey-of-lorry-parking

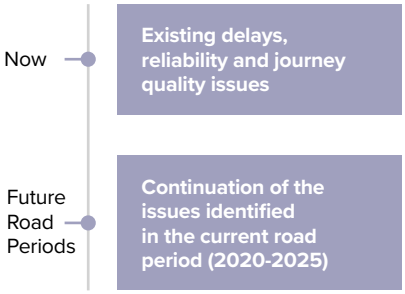
Outcomes

- Improved reliability and journey times for both strategic and local freight and coach journeys along the route
- Improved journey quality (including service and rest facilities) for freight and coach users

DfT's Strategic objectives

- Network performance
- Growing the economy
- A technology-enabled network

Timeframe based on the issues and constraints identified



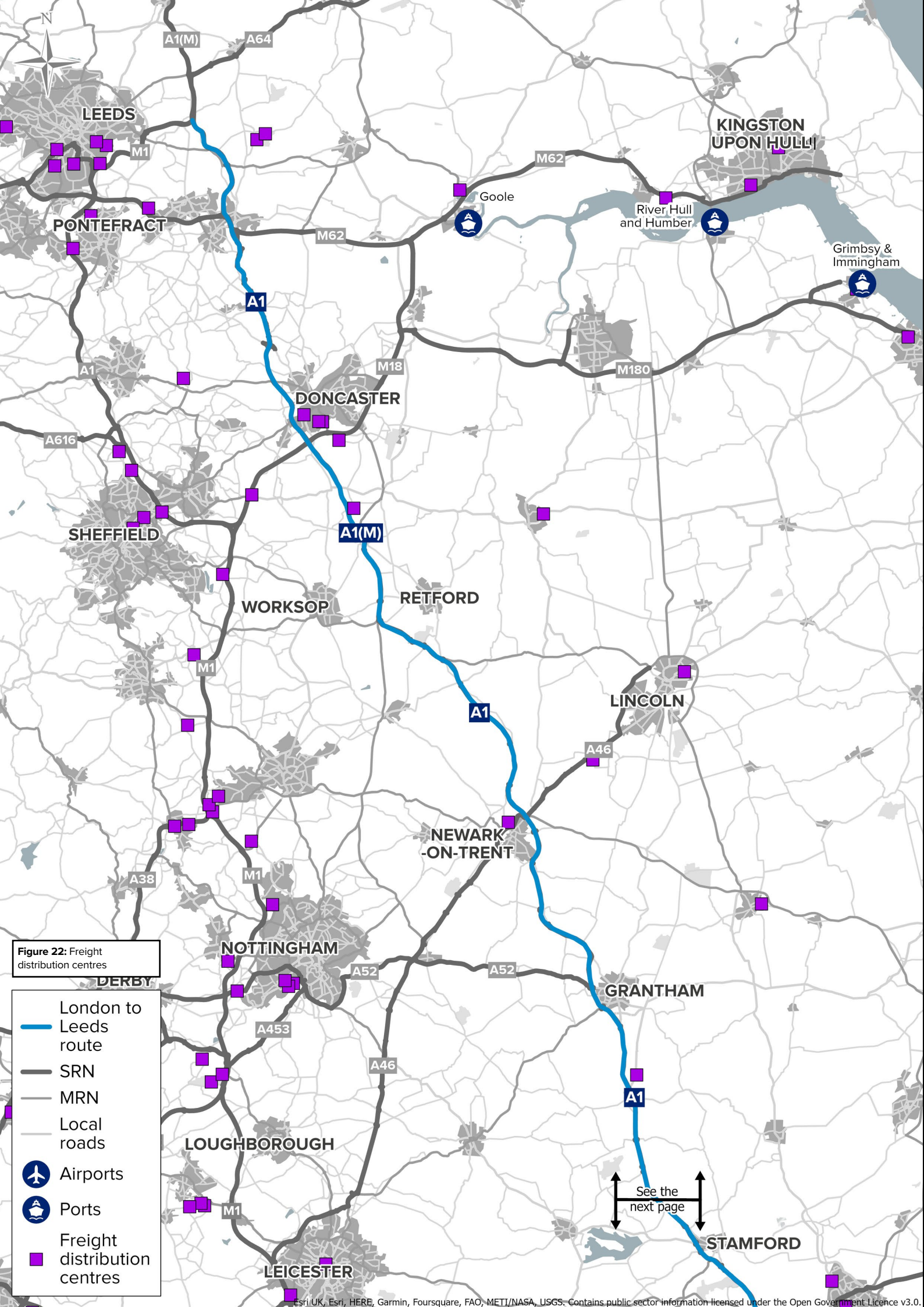
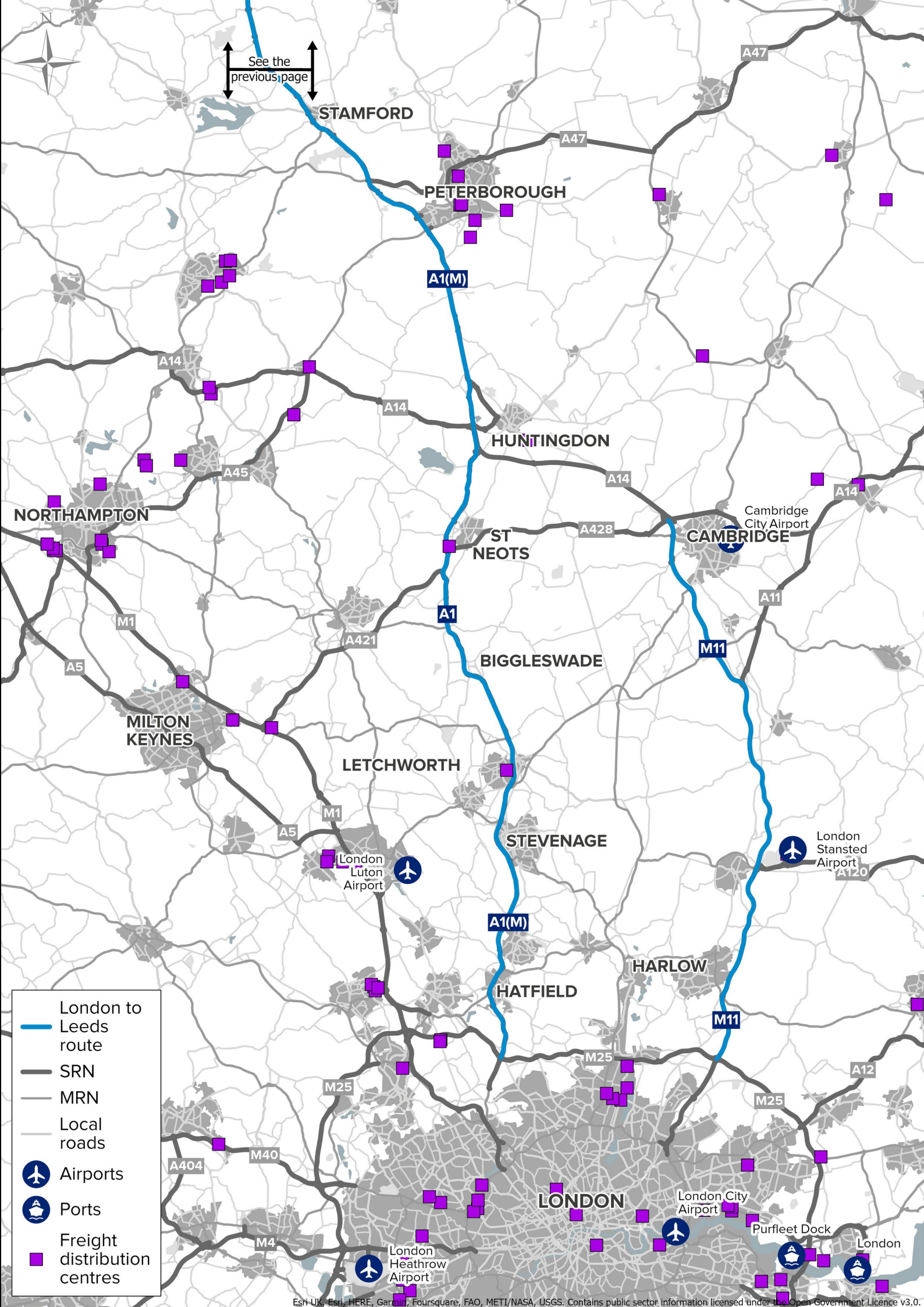


Figure 22: Freight distribution centres



D. Support sustainable economic and housing growth

Objective

Support sustainable economic and housing growth, particularly in growth areas and other economic clusters in Yorkshire, Newark, Grantham, Peterborough, Cambridgeshire, Hertfordshire and Essex

Context

The A1(M) between the M25 and Baldock provides connectivity for the economic clusters directly along the route, such as Stevenage with its high-value aerospace sector, and Welwyn/ Hatfield with their distribution centres, and the University of Hertfordshire. There is planned employment and housing growth along this corridor, such as at Stevenage.

North from Baldock, the A1 continues through Bedfordshire and Cambridgeshire where considerable employment and housing growth is planned at locations close to the A1 itself and in the wider region. Interested parties were concerned that the performance of the Baldock to Huntingdon section of the A1 would affect the region's growth aspirations.The planned East West Rail line would have a station in the St Neots / Sandy area near the A1, offering an opportunity for integration between road and rail.

In the East Midlands, in addition to the growth aspirations for the region's strategic road network-dependent agri-tech and distribution sectors, there are specific growth locations at Peterborough, Grantham and Newark.

Within South and West Yorkshire, the A1(M) provides connectivity for Local Plan growth sites at Castleford/Knottingley.

The M11 is a spine of the London-Cambridge-King's Lynn 'UK Innovation' strategic corridor identified by Transport East[46]. It supports the nationally-important growth of the Cambridge sub-region and its knowledge-based economy. The route serves both as strategic connectivity through its road link to Stansted Airport and London, and by serving journeys within the region such as commuting to and from dispersed employment clusters around the city. There is also a cluster of visitor attractions in and around Cambridge. The M11 and A14 work together to provide access to these attractions, as well as serving long-distance north-south journeys. The M11 also provides strategic road access to the employment and housing growth locations of Harlow and Bishop's Stortford.

Our network considerations

The congestion, delay and reliability issues described under objectives B and C also apply to this objective. There is congestion and delay at a number of locations, particularly near large urban centres and commuter destinations in peak hours, and on some sections of the A1 that are not of motorway standard with numerous at-grade junctions and access roads to properties.

Journey time data show particular areas of delay:

- average peak period delay on the A1(M) during the morning peak southbound at Stevenage between Junctions 8 and 7, and during the afternoon peak northbound at Welwyn Garden City between Junctions 5 and 6
- unreliability between Junctions 5 and 6 at Welwyn Garden City
- average peak period delay on the approaches to the roundabouts on the A1 between Biggleswade and Huntingdon
- seasonal delay on certain parts of the route

46 Transport East (November 2021) *Draft Transport Strategy.* https://www.transporteast.org.uk/wp-content/uploads/TransportEastStrategy.v6.pdf

Interested parties have also identified other congestion and delay locations and issues including:

- junctions on the A1 between Peterborough and Blyth, including the cross-routes but also queuing at slip roads
- the impact of incidents and the availability of diversionary routes for the A1 between Peterborough and Blyth
- the A1(M) / M18 junction
- peak period congestion on the M11 around Cambridge and from the M25 to Harlow
- the impact of heavy goods vehicles on the steeply-graded section of the M11 between Junctions 8 and 9

Interested parties have concerns over the route's low level of reliability, arising from a range of factors including the congestion and delay locations, limited technology to allow drivers to choose alternative routes to avoid incidents, and the range of diversionary routes available. They also have concerns over the limited provision of services and lay-bys and have identified the need for additional lorry parking.

Projected growth is likely to lead to increased average peak period delay in a number of areas, particularly:

- the A1(M) northbound between Junctions 1 and 2
- the A1 southbound between Sandy and Biggleswade
- parts of the A1(M) around Doncaster
- the M11 southbound between Junctions 14 and 12

On the A1 at Grantham, a new junction is currently under construction as part of the Grantham Southern Relief Road project which aims to support growth as well as improving the town's infrastructure. This is being delivered by Lincolnshire County Council with funding support from National Highways and other partners. Interested parties have identified the likely need for additional interventions to support further growth in the Grantham area.

On the M11, the new Junction 7A recently opened at Harlow aims to support strategic development in that area and reduce traffic at Junction 7. Interested parties have identified concern over capacity at Junction 8 beyond 2030, due to the cumulative impact of employment, housing and airport growth. They have suggested the need for a strategic approach to most effectively support the full range of anticipated growth at that location as well as addressing severance issues at this location.

Outcomes

- Sustainable planned housing and economic development delivered along the route
- Improved integration with the rail network by enabling connectivity with East West Rail

DfT's Strategic objectives

- Network performance
- Growing the economy

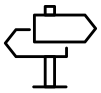
Timeframe based on the issues and constraints identified

Now

Existing congestion, delay, reliability and journey time issues. Development of East West Rail plans

Future Road Periods

Continued growth. Capacity issues at M11 Junction 8



E. Be a better neighbour

Objective

Be a better neighbour by safeguarding the environment and reducing the impact of adverse air quality, noise and severance on local communities along the A1, A1(M) and M11, in areas such as Sandy, Beeston and Seddington and around Doncaster

Context

The A1, A1(M) and M11 run close to, and occasionally through, a number of communities. Traffic using these roads can have adverse impacts on health and quality of life in those areas, including noise, poor air quality and severance impacts.

Our network considerations

The main concentrations of receptors which may experience higher noise levels within 300 metres of the route (Figure 23) are:

- on the A1(M) from Junctions 3 (A414) to 6 (Welwyn north) and at Baldock
- on the A1(M) from Junctions 34 (Blyth) to 37 (A635)

However, there are also Noise Important Areas (NIAs) throughout the route, with only limited sections, such as the northern part of the M11, that have few or no NIAs.

There is a concentration of NIAs on the A1(M) between Hatfield and Stevenage, reflecting the string of residential areas near this part of the route, especially at Hatfield and Welwyn Garden City.

The main concentrations of receptors which may be more likely to experience adverse air quality impacts within 100 metres of the route (Figure 24) are on:

- sections of the A1 and A1(M) around the series of towns from Hatfield to Alconbury
- the A1 from Alwalton to Stamford, and at Grantham, Newark and Tuxford
- the A1(M) at Tickhill and around Doncaster
- the M11 at Harlow

Several Air Quality Management Areas are particularly close to the route:

- the A1 at Sandy, where interested parties also expressed concerns over emissions
- the A1(M) through the residential areas west of Doncaster
- the A1 / A1(M) Redhouse to M62
- the M11 at Junctions 13-14 west of Cambridge, which also relates to traffic on the A14 to which the M11 connects at this point

The A1 runs through the communities of Beeston and Seddington. Other parts of the A1, such as Lower Caldecote and Wyboston, have properties directly accessed from the route.

Interested parties have raised concerns over severance at certain locations, particularly at Beeston and Seddington, at Sandy due to traffic volumes, and at certain junctions with limited provision for active travel, such as M11 Junction 8. Some sections of the A1 mainline are used by pedestrians and cyclists for local journeys. At other locations throughout the route, interested parties have highlighted opportunities to improve active travel facilities for journeys that cross the route, including signed walking and cycling routes and access to developments around junctions.

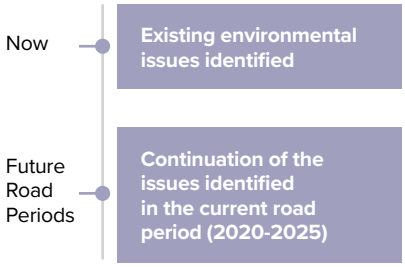
Outcomes

- Improved environmental conditions for people living along the route

DfT's Strategic objectives

Improved environmental outcomes

Timeframe based on the issues and constraints identified



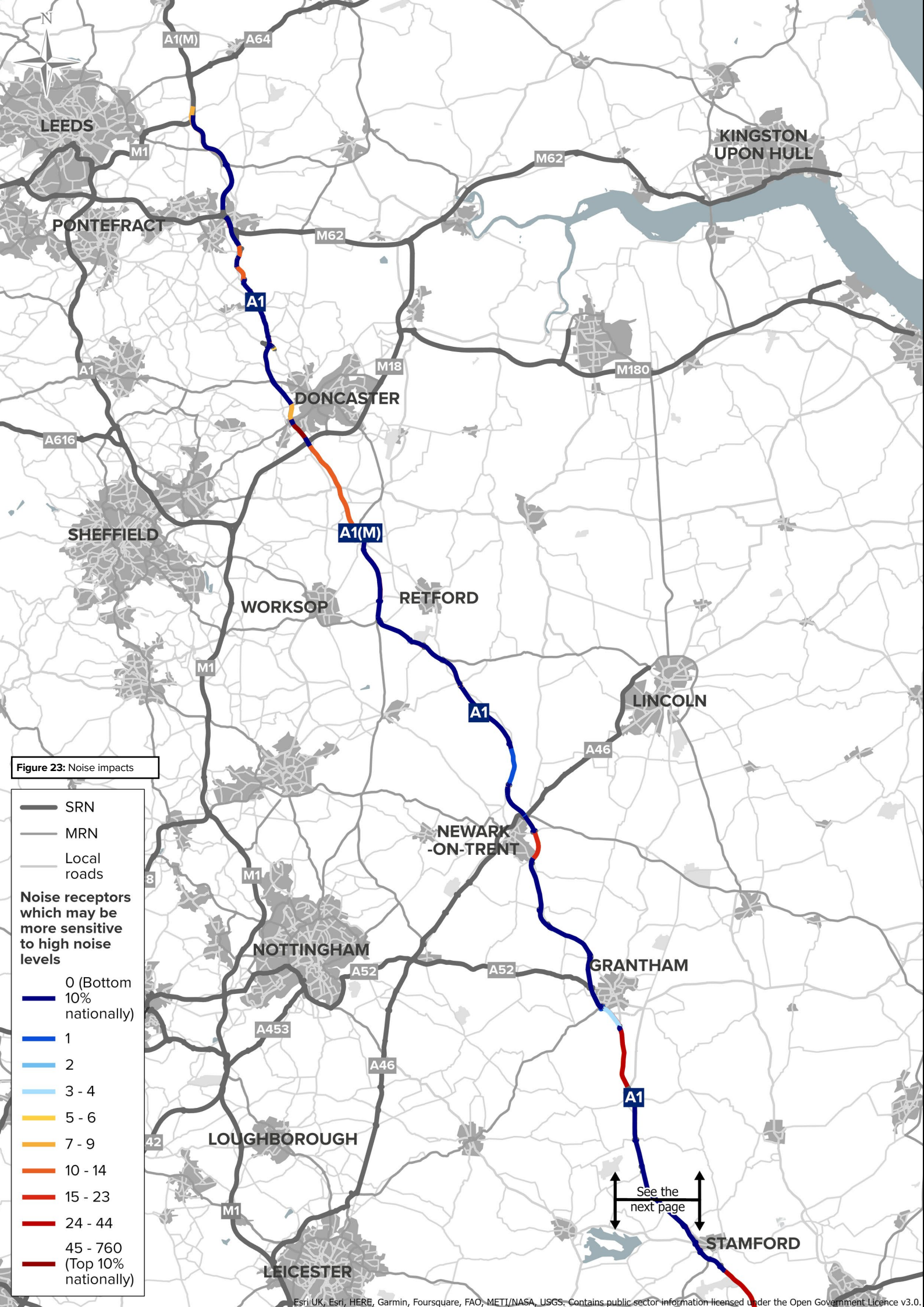
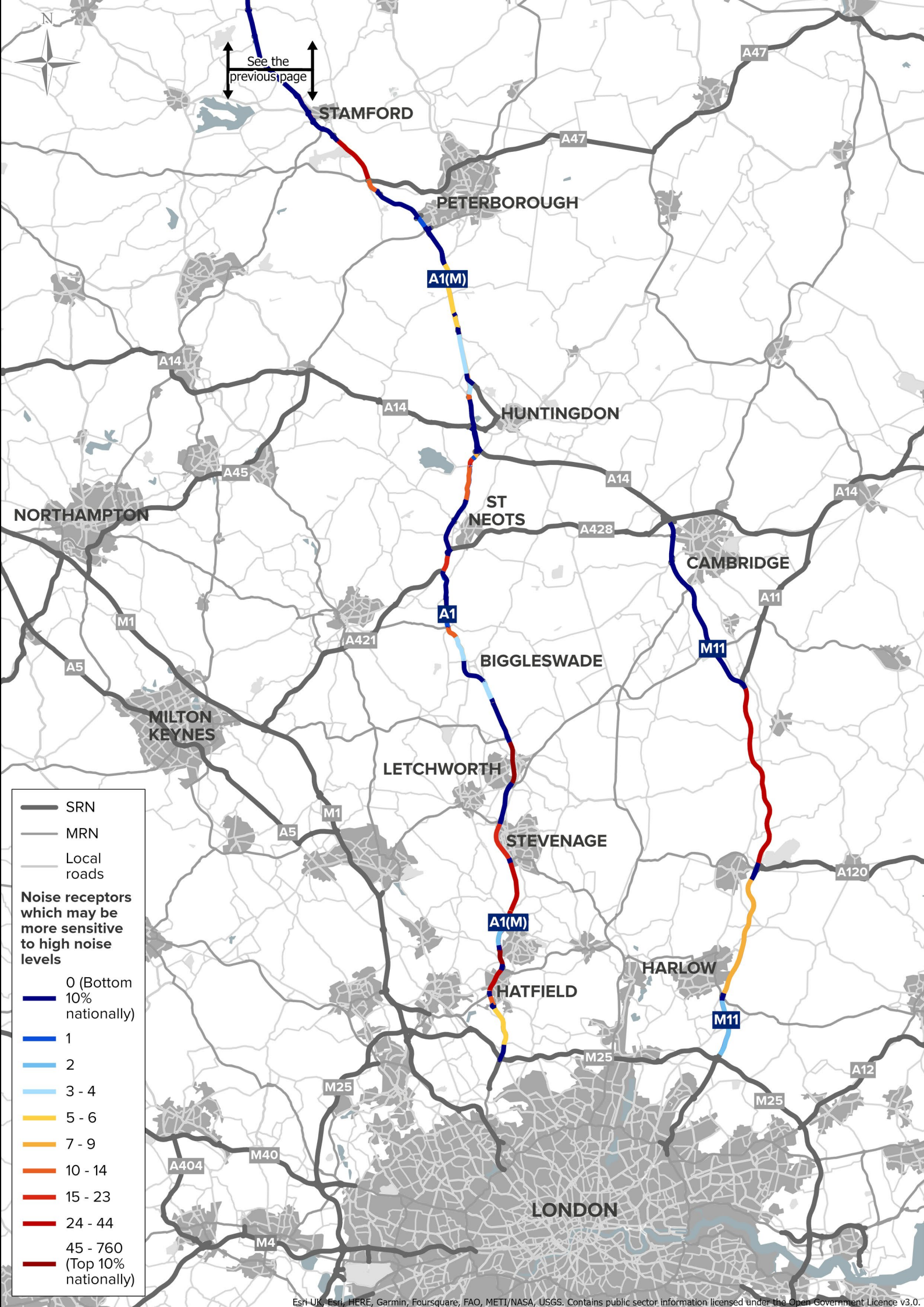


Figure 23: Noise impacts



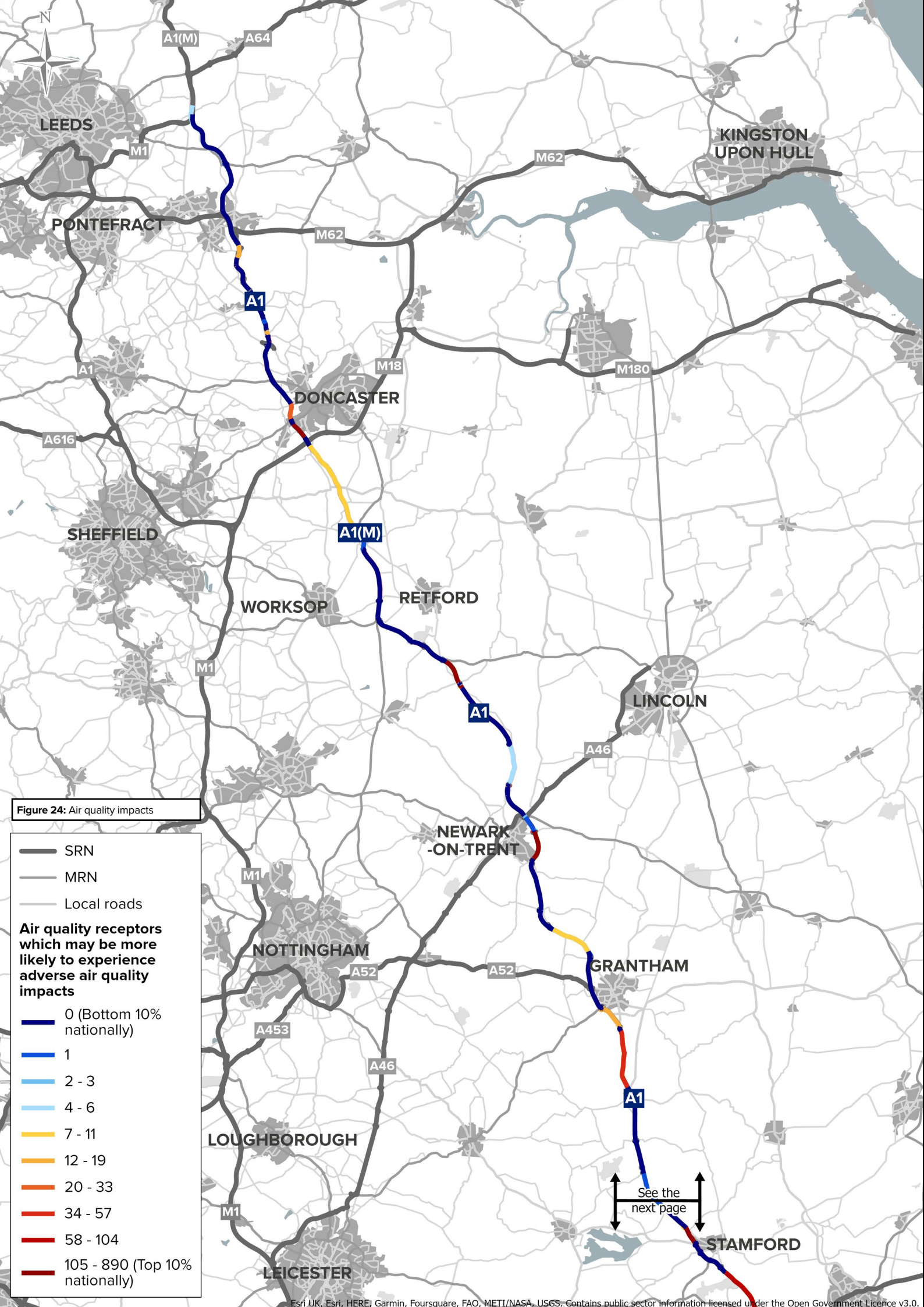
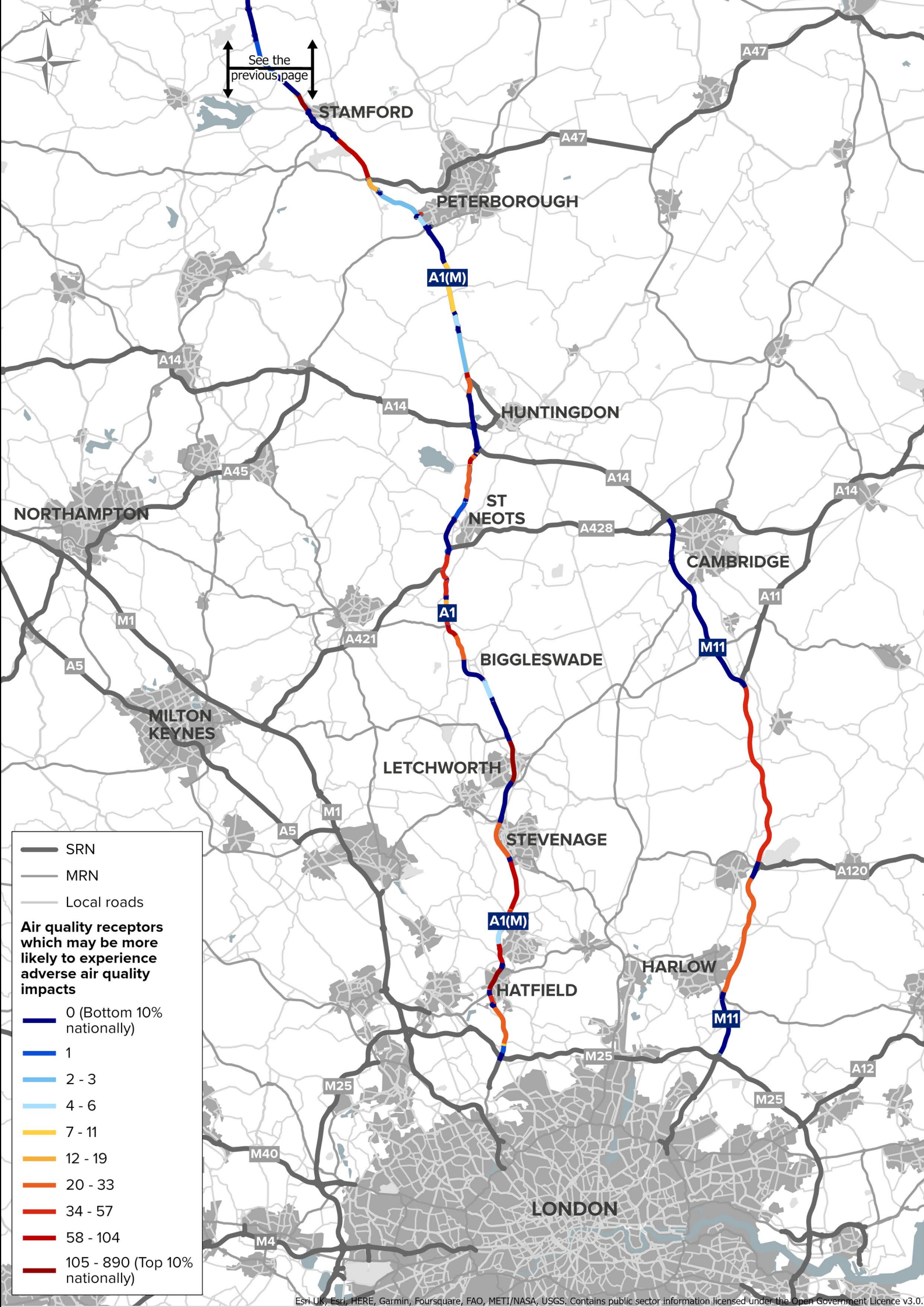


Figure 24: Air quality impacts



F. Better informed drivers

Objective

Improve communications to better inform drivers and improve their end to end journey experience for journeys involving or crossing the A1, A1(M) and M11, to allow drivers to make informed route choices

Context

Improving information sharing and distribution of travel time data will help inform driver travel choice and route selection. Informing drivers of travel data in advance of joining the strategic road network at critical route decision points will assist in reducing congestion and delay, and aiding highway demand management.

Interested parties highlight the importance of resilience and predictable journey times, particularly for freight, and the need to be able to make routing choices between parallel options (such as the A1 and A1(M) corridor or the M1 corridor) at an early enough stage of the journey.

Our network considerations

Interested parties considered that the route overall lacks the technology to enable better management, incident response and driver information.

This is seen as particularly significant for the longest north-south journeys, where there is a choice of corridors (A1 versus M1) but the decision must be made at an early stage in a journey. A similar issue applies to the choice between the M11+A14 and A1+A1(M) corridors for the section between the M25 and Huntingdon.

Interested parties also highlighted the importance of journeys that cross the A1 at its junctions, such as freight journeys on the major road network in the East Midlands. For these journeys too, information on potential delays at the junctions can help drivers to re-route effectively. Interested parties therefore saw a need for the strategic and local highway authorities to work together on improved communications that were not confined to individual authorities' own networks.

Outcomes

- Better-informed drivers
- Improved reliability and resilience, particularly for strategic journeys

DfT's Strategic objectives

- Network performance
- A technology-enabled network

Timeframe based on the issues and constraints identified

Now	Existing lack of technology identified
Future Road Periods	Continuation of the issues identified in the current road period (2020-2025)


M62 Manchester, Leeds
41 1m
The NORTH, Wetherby A1(M)

Table 2: Evidence used to inform objectives

Objective		Extent	Chapter 3 Views raised by our customers and neighbours	Chapter 4 Integration with our partners' strategies and priorities	Chapter 5 Challenges and issues identified

A	**Improve safety for all:** provide safe journeys on the A1, A1(M) and M11, to benefit road users and local communities	All route sections	Concerns of interested parties related to road safety on:
			• non-motorway sections of the A1
			• the A1(M) between Junctions 35 and 38
			• the M11 south of Junction 8
			• two-lane sections of the route with high volumes of heavy goods vehicles
				National Highways works with other operators, including Local Authorities, to ensure that the overall highway network works safely, reflecting that the safety of those who travel and work on our roads remains National Highways' top priority	• Sections of the A1 and A1(M) have 2-star International Road Assessment Programme safety ratings, particularly the A1 between Baldock and Wyboston
					• Concentrations of collisions where people were killed or seriously injured, on certain parts of the route
					• Although most of the route is in the low-risk (safest) category on the Road Safety Foundation Crash Risk Mapping, there are low-medium risk sections on the A1 from:
					  • Baldock to Black Cat
					  • Peterborough to Newark
					  • Redhouse to Darrington

B	**Support reliable connectivity for the UK:** support reliable strategic connectivity for the UK for people and goods between the north, east Midlands, eastern and South-East England (including their ports and airports), promoting the UK and regional economies	All route sections	Concerns of interested parties related to reliable strategic connectivity to support the economy included: • the route's importance to national and regional economies • the route's importance to long-distance freight movements, including to and from ports and airports • the importance of the combination of strategic road network and major road network routes to the freight industry • current and anticipated congestion locations • reliability and resilience along the route • availability of heavy goods vehicle parking and freight facilities • a need for improved communications to allow better journey planning • inconsistencies between sections of the A1 and A1(M), with opportunities to upgrade some sections to the standards seen on others	The route forms part of a connecting spine between Scotland and the East Midlands and South-East England for movement of people and freight, as well as supporting wider connectivity The route could be part of the UKNET East Coast corridor recommended by the *Union Connectivity Review*	Key challenges and issues related to this objective are: • congestion and delay at a number of locations, particularly near large urban centres and commuter destinations in peak hours, and on some sections of the A1 that are not of motorway standard with numerous at-grade junctions and access roads to properties • projected growth is likely to lead to increased congestion and delay in a number of areas • reliability issues on parts of the route, with concerns about the impact of incidents and diversionary routes

Objective		Extent	Chapter 3 Views raised by our customers and neighbours	Chapter 4 Integration with our partners' strategies and priorities	Chapter 5 Challenges and issues identified
C	**Support the efficient movement of goods and people:** improve the reliability of freight and coach journeys along the A1, A1(M) and M11, alongside improved driver parking and welfare facilities to support both the local, regional and national economy	All route sections	Concerns of interested parties related to freight and coach journeys included: • the route's importance to long-distance freight movements, including to and from ports and airports • the importance of the combination of strategic road network (SRN) and major road network routes to the freight industry • current and anticipated congestion affecting journey times and reliability • overall reliability and resilience along the route • incidents on the A1 having a detrimental impact on other roads • the availability of heavy goods vehicle parking and freight facilities • growth in logistics centres along the route • a need for improved communications to allow better journey planning	• Midlands Connect's *Strategic Transport Plan* includes 'helping to move goods' as one if its five priorities to improve regional connectivity • Similarly, Transport for the North's *Strategic Transport Plan* includes an aim to "Move goods by supporting businesses to move freight and goods efficiently and across modes" • England's Economic Heartland's priorities include "Ensuring the Heartland works for the UK by enabling the efficient movement of people and goods through the region and to/from international gateways…" • Transport East's strategic priorities include "Unlocking international gateways: Better connected ports and airports to help UK businesses thrive, boosting the nation's economy…"	Key challenges and issues related to this objective are: • the route's role in long-distance and other strategic journeys, particularly for freight • the heavily SRN-reliant regional economy in the East Midlands • current average peak period delay on parts of the route • reliability on parts of the route, with concerns about the impact of incidents and diversionary routes • seasonal peak delays on certain parts of the route • forecast growth leading to increased congestion and delay in a number of areas • information for road users (before and during the journey)

Objective		Extent	Chapter 3 Views raised by our customers and neighbours	Chapter 4 Integration with our partners' strategies and priorities	Chapter 5 Challenges and issues identified
D	**Support sustainable economic and housing growth:** support sustainable economic and housing growth, particularly in growth areas and other economic clusters in Yorkshire, Newark, Grantham, Peterborough, Cambridgeshire, Hertfordshire and Essex	All route sections	Concerns of interested parties related to sustainable economic and housing growth were: • the importance of the route for supporting national and regional economies • the importance of long-distance freight movements using the route, including movements to and from East Coast and Channel ports • growth in housing, logistics centres and other developments along the route • the performance of the A1 between Huntingdon and Baldock. There was concern that this affected the region's growth aspirations as well as network performance • current and anticipated congestion and severance at M11 Junction 9 (Bishop's Stortford / Stansted Airport). Future congestion and delay would need a strategic approach to most effectively support the full range of anticipated developments • the opportunity for the strategic road network (SRN) to integrate better with other transport modes and land-use planning decisions. A holistic approach to planning land-use and transport networks was sought	Two of Midlands Connect's three grand challenges relate to this objective: 1. Fairer: Levelling up and strengthening the region and UK. Being ready for HS2; enhancing quality of life; and integrating transport networks 2. Stronger: Driving resilient economic growth. Providing fast and reliable transport connections; and enabling population and employment growth. Transport for the North's Strategic Transport Plan objectives include transforming economic performance. The London to Leeds route contributes most directly to the Yorkshire-Scotland Strategic Development Corridor, one of the Plan's seven Strategic Development Corridors that reflect economic links across the North and where there is likely to be the most potential for realising the benefits of connecting the economic assets and clusters of the North. England's Economic Heartland's priorities include supporting the regional economy by connecting people and businesses to markets and opportunities. Transport East's *Draft Transport Strategy* includes, among its four strategic priorities: • Connecting growing towns and cities • Energising coastal and rural communities • Unlocking international gateways	Key challenges and issues related to this objective are: • the route's role in long-distance and other strategic journeys, particularly for freight • the many housing and mployment growth areas along the route • strategic access to the Cambridge area knowledge economy • the heavily SRN-reliant regional economy in the East Midlands • concentrations of deprivation at a number of locations along the route

Objective		Extent	Chapter 3 Views raised by our customers and neighbours	Chapter 4 Integration with our partners' strategies and priorities	Chapter 5 Challenges and issues identified
E	**Be a better neighbour:** be a better neighbour by safeguarding the environment and reducing the impact of adverse air quality, noise and severance on local communities along the A1, A1(M) and M11, in areas such as Sandy, Beeston and Seddington and around Doncaster	All route sections	Concerns of interested parties related to environmental impacts were: • the need to respond to net zero carbon and environmental ambitions • local environmental impacts in particular locations, including locations along the A1 with homes alongside • severance issues at specific locations • opportunities to improve active travel facilities for movements that cross the route	One of Midlands Connect's three grand challenges is "Greener: Decarbonising transport and adapting to climate change. Contributing to achieving 'Net Zero ' by 2050; ensuring resilient networks; and minimising the environmental impacts of new infrastructure". One of Transport for the North's *Strategic Transport Plan* objectives is "Promoting and enhancing the built, historic and natural environment" England's Economic Heartland's priorities include achieving net-zero carbon emissions from transport, improving quality of life and wellbeing, and lessening transport's environmental impact Transport East's strategic priorities include decarbonisation.	Key challenges and issues related to this objective are: • maintaining and protecting areas of outstanding natural beauty, areas with environmental designations and cultural heritage • minimising greenhouse gas emissions • building resilience to future climate change • receptors which may experience higher noise levels within 300 metres, particularly on certain sections of the A1(M) • receptors which may be more likely to experience adverse air quality impacts within 100 metres on certain parts of the route • severance impacts at certain locations
F	**Better informed drivers:** improve communications to better inform drivers and improve their end to end journey experience for journeys involving or crossing the A1, A1(M) and M11, to allow drivers to make informed route choices	All route sections	Concerns of interested parties related to communications were: • a need to work with local highway authorities on improved communications, as this would enable road users to plan their journeys better	The inter-relationship of the strategic road network (SRN) and major road network (MRN) is complex. Not only do both networks provide access to economically important locations across England and resilience for each other, but congestion, delays and improvement schemes on one network can significantly influence travel behaviours on the other. And most SRN journeys involve elements of both networks. We work with local authorities, who are the highway authorities for local roads, including those on the MRN, and we work closely with them in many areas. This collaboration ranges from operational matters to more strategic issues, to ensure that the highway network overall works safely, efficiently and effectively to provide high quality and seamless customer journeys	Key challenges and issues related to this objective are: • information for road users (before and during the journey)

Unlocking regional potential

07 Locational areas for consideration and potential collaboration

We know the importance that investment in our network can make locally, regionally and nationally. It can make areas more attractive for inward investment, unlock new sites for employment and housing and facilitate regeneration. It can also ease congestion, improve our customers' journeys and support environmental improvements in urban and rural communities along our network.

In this chapter, we outline our proposed locational areas for further consideration, which will be explored in future road periods to achieve the London to Leeds route objectives and the Department for Transport's (DfT's) six strategic objectives. These do not represent a commitment as funding will be considered as part of the development of the third *Road Investment Strategy (RIS)* and other investment processes.

Furthermore, they do not represent a final list of our potential investment locations and will be refined in our final Route strategy overview report, published alongside our RIS3 *Strategic business plan* and *Delivery plan* for 2025-2030.

Alignment with government objectives

Route strategies are aligned to the DfT's six strategic objectives and will also contribute to the RIS3 performance metrics set as part of the RIS-setting process.

Improving safety for all

Safety is our top priority and we are committed in the second road period (2020-2025) to reducing the number of road users killed or seriously injured on the strategic road network (SRN), by 50% (from the 2005-2009 baseline) by the end of 2025, with a long-term vision of zero harm. This includes our contractors adopting a safe system approach to ensure roadworker safety. Our operational and strategic planning teams continue to work to prevent incidents from occurring and are focussed on reducing incident severity through a package of activities to promote safer roads, safer people, safer vehicles and coordinated collision response. We are also learning from other organisations and interested parties about what works best and collaborate with them to improve safety for all. Safety is embedded in our study programme to inform future investment priorities for RIS3 and beyond.

Network performance

Our operational and strategic planning teams continue to explore what steps can be taken to make journeys more reliable and not subject to delay, as well as safer, while protecting and respecting the environment. This involves working with our partners such as Sub-national Transport Bodies and other operators such as Network Rail to consider interventions to improve network performance as we recognise the SRN does not stand alone from other transport infrastructure, in particular local roads, and users expect journeys to be seamless regardless of transport mode or ownership. Through our study programme we will identify appropriate types of intervention recognising the need for integration, environmental and digital consideration balanced against costs.

Improved environmental outcomes

We are continuously working to ensure our roads work more harmoniously with the communities that live alongside them and the environments that surround them. We embed environmental considerations into all our activities, ranging from infrastructure design to scheme delivery and ensuring we meet our statutory obligations, and the way we manage and operate our network. In developing our intervention programmes, we will consider a broad range of interventions including technology enabled solutions and integration with other operators' networks as we understand the gravity of the climate situation and are committed to playing its part in reducing carbon emissions. Our carbon policy commitments are:

- As a net zero Britain will still travel by road in 2050, we will ensure a properly maintained, future-ready road network, that is fitted to support the transition to electric vehicles, is key to reducing emissions from transport
- This programmatic coordinated delivery approach will act as a catalyst for: production management, off-site construction, reducing network disruptions, unlocking economies of scale, and supporting delivery of Net Zero targets
- It will also help us understand how interventions should be delivered, either through grouping or as standalone projects
- We expect this approach will create opportunities for increased efficiencies and enable us to deliver more within our funding. We also expect this approach to help us support the Government's long-term aims for the nation, such as contributing to net zero carbon, and social value

Growing the economy

We recognise that the SRN is a significant economic asset for the UK and is essential for people to access jobs, and for businesses and logistics firms moving goods around the country. Our regional planning teams continue to work closely with local planning authorities to support sustainable growth and development aspirations, including integration with other modes. We also continue to work with businesses to understand their needs such as quality lorry parking facilities and ensuring reliable and resilient integration with ports, airports and rail terminals through which we access global markets. The SRN also has a role in achieving the Government's moral, social and economic programme of levelling up the United Kingdom. Our forward intervention programme will seek to support the growth agenda where possible and appropriate.

Managing and planning the SRN for the future

We recognise that our network is complex and varied and requires careful stewardship to keep it in good condition. Our ongoing maintenance programme is essential to safety and keeping our roads open, while our renewals activity allows us to maintain, safeguard and modernise all our assets, and provide increased resilience in relation to extreme weather. Research and data help us to understand what our network needs over the short and long term and to inform our planning. We continue to be committed to delivering our work in a way that minimises disruption to our customers and maximises value to taxpayers.

A technology-enabled network

In designing our intervention programmes, we will consider our Digital Roads vision for how we harness data, technology, and connectivity to improve the way the strategic road network is designed, built, operated and used for the future. This will enable safer journeys, faster delivery and an enhanced customer experience for all, recognising the specific challenges of delivering technology and relevant information in more rural and remote parts of the network.The vision is structured around three themes: Design & Construction; Operations; Customers. The approach embeds digital, data and technology across the intervention programmes, providing the building blocks for a digital future for roads.

Programmatic approach to investment

As part of our new route strategies process, we are developing a more programmatic approach to how we develop our investment plans. This will help us determine the complexity of potential investments and what high value interventions are more deliverable.

This programmatic coordinated delivery approach will act as a catalyst for; production management, off-site construction, reducing network disruptions, unlocking economies of scale and supporting delivery of Net Zero targets.

It will also help us understand how interventions should be delivered, either through grouping or as standalone projects.

We expect this approach will create opportunities for increased efficiency, enable us to deliver more within our funding and in collaboration with other investment programmes.

We also expect this approach to help us support the Government's long-term aims for the UK, such as contributing to net zero carbon.

Figure 25 shows how the route objectives defined in the route strategies, along with the associated cluster analysis of performance metrics, help to refine an initial set of locations for future investigation. Further iterations of sifting as information and analysis evolves will help to inform the Government's setting of RIS3 (2025-2030) and beyond. The input from route strategies early on in this process will ensure that all schemes which are ultimately taken forward align with the route objectives.

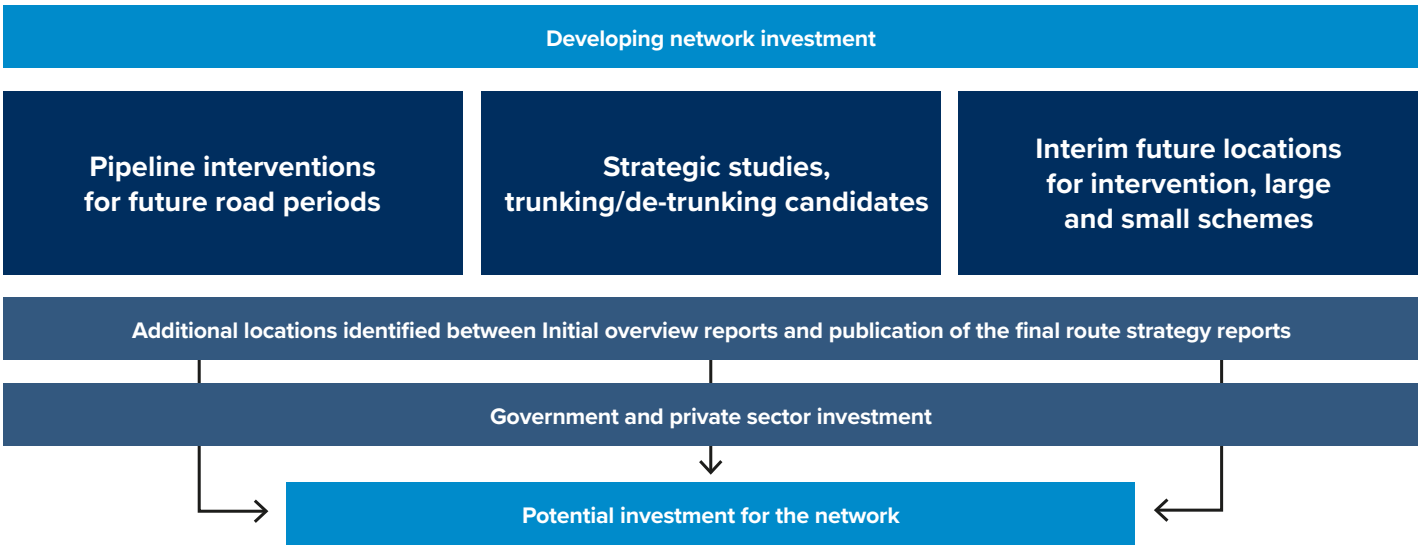


Figure 25: Process to identify potential investment on the network

Types of investment and funding sources

There are a variety of funding streams which enable us to invest in our network and which form part of our investment planning. These are summarised in the following section, along with the current committed schemes associated with each funding source for the London to Leeds route. Key funding sources could include:

- RIS Funding – a funding stream administered by National Highways, set by the Government's publication of the RIS:
    - RIS2 schemes are committed by DfT to be delivered as part of the *Road Investment Strategy,* as outlined in the following RIS2 table. The statement of funding confirmed that £24 billion will be provided during the second road period (2020-2025) to deliver this work, noting that some RIS2 commitments will continue into the third road period (2025-2030)
    - RIS4 (2030-2035) pipeline schemes, previously earmarked for RIS3 (2025-2030), will continue to be developed in line with our statutory processes and considered for inclusion within RIS4. These are potential future schemes originally identified by National Highways and set as part of RIS2 by DfT. These schemes are not currently committed for construction.
- Maintenance funding and asset renewal – within National Highways there is funding set aside for network maintenance and renewing ageing assets across the network. The budget for these is included in the RIS settlement
- Potential targeted funding streams that may be made available to National Highways during the third road period (2025-2030) as part of the wider RIS settlement, focused on making improvements that will make the biggest difference and deliver lasting benefits
- Other external sources of funding for delivering infrastructure enhancements on, or close to, the SRN including government, third parties, private sector developments, and inward investment

RIS2

The following schemes are committed for the second road period (2020-2025) on the London to Leeds route:

Scheme number	Scheme	Description	Start of works	Open for traffic
Committed for the second road period (2020-2025)				
1	A428 Black Cat to Caxton Gibbet	We will upgrade the route between the Black Cat roundabout and Caxton Gibbet. A new 10 mile dual carriageway will connect the Black Cat roundabout and Caxton Gibbet roundabout. This will provide quicker, safer and more reliable journeys, support local and regional economic growth, help life in local villages, improve the environment and improve travel for walkers, cyclists and horse riders.	2022-23 Q3	Third road period (2025-2030)
2	A47 Wansford to Sutton dualling	We will provide a new stretch of dual carriageway, plus a dedicated slip road from the A1 southbound to the A47 eastbound. This will improve road safety, contribute to sustainable economic growth and reduce congestion delays.	2022-23 Q4	2024-25
3	A46 Newark Bypass	We will improve the capacity of the single carriageway and junctions of the A46 at Newark, and provide better links to the A1. The aims of the scheme are to: • boost business productivity and economic growth by providing a more reliable road network and improved local access • increase capacity, reduce delays and incidents, and improve journey times • improve resilience on the network	Third road period (2025-2030)	–

RIS4 pipeline

The following uncommitted schemes are in the pipeline for the fourth road period (2030-2035) on the London to Leeds route.

Scheme number	Scheme	Description
1	A1 Doncaster to Darrington	The scheme aims to improve safety and reduce congestion whilst ensuring that impacts on people and the environment are minimised.
2	M11 Junction 13 Cambridge West	Addition of north facing slip roads with corresponding junction changes.

Other notable schemes

On the London to Leeds route, in addition to the committed RIS2 schemes listed above, there are two other committed schemes:

- On the A1 at Grantham, a new junction is currently under construction as part of the Grantham Southern Relief Road project which aims to support growth as well as improving the town's infrastructure. This is being delivered by Lincolnshire County Council with funding support from National Highways, through the Growth and Housing Fund, and other partners, and is scheduled to be open for traffic by Autumn 2023.
- The Newark Southern Link Road will connect the A46 at Farndon to the A1 at Balderton. It aims to ease traffic congestion and improve journey times along the A46 Newark Bypass, and to support growth on the south side of Newark. Funding is from Homes England (previously, Homes and Communities Agency), a developer, Newark and Sherwood District Council, and the D2N2 Local Enterprise Partnership's Local Growth Fund.

Strategic studies, trunking and de-trunking

National Highways undertakes Strategic Studies to analyse complex problems that may need to be addressed over multiple road periods. Strategic Studies can involve close working with key partners including Sub-national Transport Bodies and the DfT, the consideration of options for improvements, and can be used to help to decide on whether to fund any proposed improvements in the future.

The one Strategic Study on the London to Leeds route is the A1 East of England. The A1 in Bedfordshire is some of the oldest dual carriageway on the SRN, and has impacts, such as noise and air quality, on the people who live on or near to it. It also creates a limit on how much growth the area can absorb without placing existing infrastructure under visible strain. Studies undertaken to date show that congestion and safety issues on the route are not substantial enough in their own right to justify the full costs of moving the road to a new, more appropriate location.

Substantial plans for local development (as proposed by the National Infrastructure Commission) have the potential to change this, and further work on the project may be considered if development becomes likely.

National Highways was asked to explore changes to the SRN to ensure the network aligns with RIS2 strategic priorities reflected in the *Strategic business plan*[47]. This plan relates to improving connections between main urban centres, to international gateways, to peripheral regions (for levelling up) and strategic cross-border routes (to strengthen union connectivity). It included a commitment to explore potential asset ownership changes between ourselves and local highway authorities that could be implemented no earlier than the start of RIS3.

The DfT has produced a shortlist of 18 trunking and two de-trunking candidates, identified following the draft RIS2 public consultation in 2018, for us to assess desirability and viability of asset transfer. De-trunking is the process of returning a National Highways road to the local Highway Authority control and vice versa for trunking. These candidates were put forward by a range of external stakeholders including local authorities, Local Enterprise Partnerships and Chambers of Commerce, then shortlisted by the DfT. There is ongoing work to review the assessment evidence and recommendations, after which government ministers are expected to announce the candidates that will progress to the detailed development stage, which will be led by National Highways and incorporated in the forward study programme and wider RIS3 process.

47 Highways England (2020) *Strategic business plan: 2020-2025*. https://nationalhighways.co.uk/strategic-business-plan/

Locations identified through route strategies for future investigation

National Highways undertakes route studies to investigate locations across the network. In addition, locations of interest have been raised by interested parties through the route strategy engagement process.

To supplement this, as part of the route strategies process outlined in this document, National Highways has used cluster analysis to identify further locations for future investigation and undertaken an exercise to align these locations to the route objectives for the London to Leeds route.

The cluster analysis allows decision-makers to easily identify which sections of roads should be prioritised for further investigation. The assessment is a two-part process. In the first part, for each route strategy, the objectives are defined geospatially. This allows us to identify over which sections of the SRN the objectives converge, therefore quickly identifying the links that helps us to achieve the maximum number of objectives. The second part of the assessment uses our understanding of the network from performance data to allow a further filter to remove links that are already performing well. This results in a filtered shortlist of SRN links or sections of roads that should be prioritised for further investigation. These have been grouped into areas of interest where they are in close proximity geographically. Should a location not be identified for further investigation as part of this initial process, this does not preclude it from being added to the list of areas of interest in the future.

The use of regional traffic models for the 2031 scenario has enabled the identification of locations for further investigation based on the forecast network operation in the future, to plan the future of the network beyond the current RIS3 cycle. Typically, this has resulted in the extension of some areas of interest, as shown in the table of locations overleaf. In the final publication version of the route strategy reports, additional data from the regional traffic models will also be considered, to enable the identification of locations for further investigation in future roads periods.

There will be further development of any proposed mitigation at each location in line with National Highways' internal processes. In order to fund any proposed improvements National Highways will draw upon the funding streams as previously identified.

Route strategies and regional traffic models

The route strategies have utilised the National Highways regional traffic models (RTMs) to identify future performance and delay on the network, which is the best data currently available.

Working with key stakeholders and interested parties, we have set out a number of potential candidate intervention locations which may require further development upon validation to check their alignment with the route strategy objectives.

New national traffic growth forecasts have now been released by the Department for Transport and as we carry out this exercise, we will consider how updated growth forecasts will impact on the identified areas for further investigation.

Alongside these more traditional road improvement schemes we will also need to support and encourage modal shift through transport integration and embrace emerging technologies to improve the performance of the network.

The impact on carbon and the environment will be central to all our thinking on which interventions are proposed to be taken forward.

Identified locations for future investigation and collaboration

Our analysis has set out the potential constraints and opportunities across the network and, in parallel, we are developing a RIS programme that is resilient to changing priorities, the carbon and environment agenda.

We have a wide range of potential intervention types within our toolkit, such as both non-roads and road-based solutions, to help us achieve our objectives. These could include:

Potential non-road interventions:

- Supporting wider network initiatives to improve the customer experience, such as provision and enhancements of facilities for the freight industry and electric vehicle charging
- Exploiting technology to improve safety and network operation, including roll out of connected corridors
- Delivering a portfolio of measures to encourage active travel
- Making environmental enhancements to minimise the impact of the SRN on surrounding communities
- Encourage modal integration and influencing demand for vehicles, particularly at interfaces with urban centres

Potential roads interventions:

- In addition to Lower Thames Crossing, we will continue to progress those remaining schemes in RIS1 and RIS2[48] that will not be in construction at the end of RP2, as well as the RIS4 pipeline, in line with government aspirations
- The pipeline schemes announced in RIS2 is the most developed portfolio of potential interventions and we propose a renewed focus to ensure schemes: are resilient with an acceptable Value for Money; consider the Carbon Management in Infrastructure standard; are affordable, with lower cost options being developed; are environmentally responsible; are deliverable; and, have strong stakeholder support and / or are a good strategic fit (e.g., ports, levelling up)

We will also develop a significant portfolio of smaller safety and congestion interventions that improve localised issues as well as route treatments that address comparably poor safety performance (International Road Assessment Programme 1-star and 2-star roads) along selected All Purpose Trunk Road corridors.

Table 3 and Figure 26 show the areas identified for further investigation, where interventions at these locations have the potential to help us achieve the majority of route objectives.

In line with National Highways' internal processes we will draw upon a wide range of funding streams, further developing any proposed intervention in the issues identified, exploring:

- Collaboration and integration opportunities
- Synergies with existing planned schemes
- Opportunities with asset and maintenance priorities as set out in Chapter 5.5

As part of the ongoing evolution of the route strategies toward final publication we will further strengthen its role in being a strategic planning tool for interested parties who have a stake in the SRN and its future.

48 Plans for new smart motorways have now been cancelled and previously paused smart motorways will now not go ahead

Table 3: Areas of interest for further investigation

Area location	Area of interest	Area issues	Now	Future road periods
		A1/A1(M) (A to I)		
A1(M) from Junction 1 (M25) to Junction 10 (Baldock)	**A**	Concentrations of **collisions** have been recorded on sections around Stevenage. **Delays and unreliability** are a concern. This includes high levels of total delay on the busy Hatfield-Stevenage section. Delays affect access to key **economic centres** as well as strategic journeys. **Traffic growth** is expected to increase levels of delay. There is a concentration of receptors potentially affected by noise from Junction 3 to Junction 6 and at Baldock. There are concentrations of receptors sensitive to **air quality** around the series of towns on this part of the route, and **severance** concerns at some locations. Employment and population **growth** are expected along the Hatfield to Stevenage part of the route and at Baldock. There is limited use of **technology** to communicate with road users, and only a limited amount of **electric vehicle charging** infrastructure. There are concerns over the availability and quality of **coach and lorry parking** facilities.	✓	✓
A1 from Baldock to the B1514 at Buckden	**B**	The section from Baldock to Wyboston and a section at Buckden have a **2-star International Road Assessment Programme (iRAP) rating**. The section from Baldock to the Black Cat roundabout has a **low-medium rating from the Road Safety Foundation crash risk mapping**. A concentration of **collisions** has been recorded between Baldock and Biggleswade. **Delay and unreliability** are a concern between Biggleswade and Buckden. **Traffic growth** is expected to increase levels of delay. There are concentrations of receptors within 100 metres which may be more likely to experience adverse air quality impacts, around the series of towns on this part of the route, including an **air quality** management area at Sandy. There are severance concerns at Beeston, Seddington and Sandy. **Population growth** is expected along this part of the route, including at Baldock and St Neots. There is limited use of **technology** to communicate with road users, and only a limited amount of **electric vehicle charging** infrastructure. There are concerns over the availability and quality of **coach and lorry parking facilities**.	✓	✓
A1(M) and A1 from Junction 16 (A15) to Tickencote Warren	**C**	This section of the A1 has a **low-medium rating from the Road Safety Foundation crash risk mapping** and is one of the highest **collision density** areas on the route. A concentration of **collisions** has been recorded near Stamford. **Delays** at junctions, the impact of **incidents** and the availability of **diversionary routes** have been raised as concerns. **Employment and population growth** is expected in Peterborough. There is limited use of **technology** to communicate with road users, and only a limited amount of **electric vehicle charging** infrastructure. There are concerns over the availability and quality of **coach and lorry parking facilities**.	✓	✓
A1 from Tickencote Warren to Stretton	**D**	This section of route has a l**ow-medium rating from the Road Safety Foundation crash risk mapping**. **Delays** at junctions, the impact of **incidents** and the availability of **diversionary routes** have been raised as concerns. The **regional economy** relies heavily on the strategic road network and there are aspirations for **growth in freight-reliant sectors**. There is limited use of **technology** to communicate with road users, and only a limited amount of electric vehicle charging infrastructure. There are concerns over the availability and quality of **coach and lorry parking facilities**.	✓	✓
A1 from Colsterworth to Gonerby Moor	**E**	This section of route has a **low-medium rating from the Road Safety Foundation crash risk mapping**. A concentration of **collisions** has been recorded near Grantham. **Delays** at junctions, the impact of **incidents** and the availability of **diversionary routes** have been raised as concerns. **Population growth** is expected at Grantham. The Grantham Southern Relief Road scheme currently under construction aims to support some growth but further growth will require further interventions. The **regional economy** relies heavily on the strategic road network and there are aspirations for **growth in freight-reliant sectors**. There is limited use of **technology** to communicate with road users, and only a limited amount of **electric vehicle charging** infrastructure. There are concerns over the availability and **quality of coach and lorry parking facilities**.	✓	✓

Area location	Area of interest	Area issues	Now	Future road periods
A1 from Gonerby Moor to Long Bennington	**F**	This section of route has a **low-medium rating from the Road Safety Foundation crash risk mapping. Delays** at junctions, the impact of **incidents** and the availability of diversionary routes have been raised as concerns. The **regional economy** relies heavily on the strategic road network and there are aspirations for **growth in freight-reliant sectors**. There is limited use of **technology** to communicate with road users, and only a limited amount of **electric vehicle charging infrastructure**. There are concerns over the availability and quality of **coach and lorry parking facilities**.	✓	✓
A1 from Long Bennington to North Muskham	**G**	The section from Long Bennington to Newark has a **low-medium rating from the Road Safety Foundation crash risk mapping**. A concentration of **collisions** has been recorded at Newark. **Delays** at junctions, the impact of **incidents** and the availability of **diversionary routes** have been raised as concerns. Employment and population **growth** is expected at Newark, also linking to growth on the A46 corridor. The **regional economy** relies heavily on the strategic road network and there are aspirations for **growth in freight-reliant sectors**. There is limited use of **technology** to communicate with road users, and only a limited amount of electric **vehicle charging infrastructure**. There are concerns over the availability and quality of **coach and lorry parking facilities**.	✓	✓
A1 from Apleyhead to Blyth	**H**	A concentration of **collisions** has been recorded near Retford. **Delays** at junctions, the impact of incidents and the availability of **diversionary routes** have been raised as concerns. The **regional economy** relies heavily on the strategic road network and there are aspirations for **growth in freight-reliant sectors**. There is limited use of **technology** to communicate with road users, and only a limited amount of **electric vehicle charging** infrastructure. There are concerns over the availability and quality of **coach and lorry parking facilities**.	✓	✓
A1(M) and A1 from Junction 35 (M18) to Darrington	**I**	The section from Redhouse to Darrington has a **low-medium rating from the Road Safety Foundation crash risk mapping** and is one of the highest **collision density** areas on the route. A concentration of collisions has been recorded near Adwick-le-Street. **Delays** have been raised as a concern on this section, particularly at the A1(M) / M18 junction. High traffic volumes mean the congestion leads to high total delays. These affect access to the area's **key economic centres** as well as long-distance traffic. **Traffic growth** is expected to increase levels of delay. There is a concentration of receptors within 300 metres which may experience higher levels of **noise** from Junction 34 to Junction 37. There are concentrations of receptors within 100m of the route which may be more likely to experience adverse air quality impacts around Doncaster, and **air quality management areas** along this part of the route. Employment and population **growth** are expected around Doncaster, Castleford/Knottingley and Pontefract. There is limited use of **technology** to communicate with road users, and only a limited amount of **electric vehicle charging** infrastructure.	✓	✓
		M11		
M11 from Junction 6 (M25) to Junction 10 (A505)	**J**	The northbound Junction 8A slip road has a **2-star International Road Assessment Programme (iRAP) rating**. The section between Junctions 6 and 8 is one of the highest collision density areas on the route. **Delay** is a concern on this section and high traffic levels mean this produces high total delay. **Heavy goods vehicles** have an impact on the steeply-graded section from Junction 8 to Junction 9. There is a concentration of receptors within 100 metres of the route which may be more likely to experience adverse air quality impacts at Harlow, and concern over **severance** at Junction 8. Employment and population **growth** are expected at Harlow, Bishops Stortford and London **Stansted Airport**. The recently completed Junction 7A scheme aims to support development in the Harlow area but other growth may require further interventions. The route is critical for passenger and freight access to **Stansted Airport**. There are concerns over the availability and quality of **coach and lorry parking facilities**. There is limited use of technology to communicate with road users, and only a limited amount of **electric vehicle charging infrastructure**.	✓	✓
M11 from Junction 11 (A10) to Junction 14 (A14)	**K**	**Delay** is a concern on this section of the route and high traffic levels mean this produces high total delay. **Traffic growth** is expected to increase levels of delay. There is an **air quality management** area at Junctions 13 and 14. **Employment and population growth** is expected in and around Cambridge. There is limited use of **technology** to communicate with road users, and only a limited amount of **electric vehicle charging** infrastructure. There are concerns over the availability and quality of **coach and lorry parking facilities**.	✓	✓

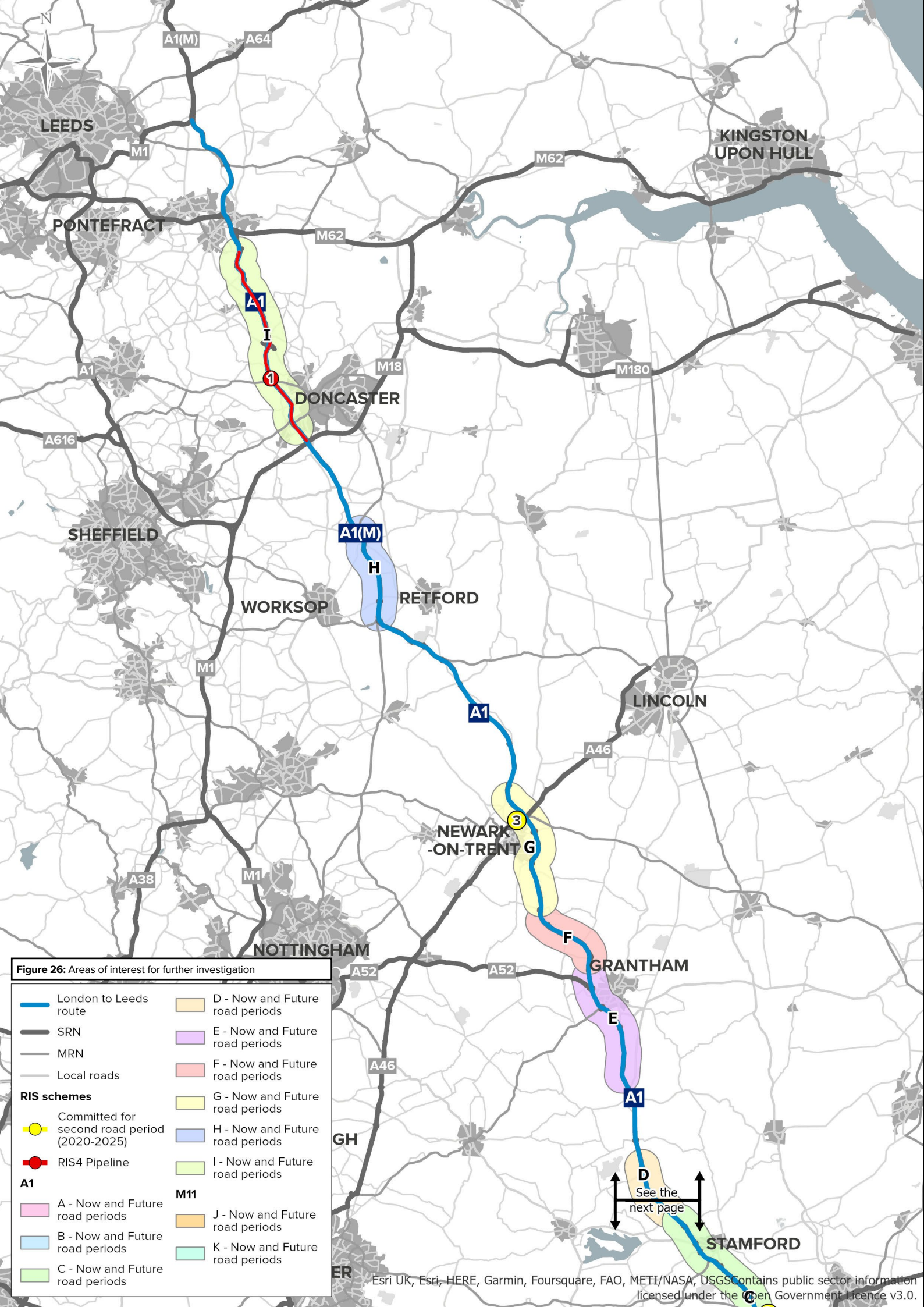


Figure 26: Areas of interest for further investigation

- London to Leeds route
- SRN
- MRN
- Local roads

RIS schemes

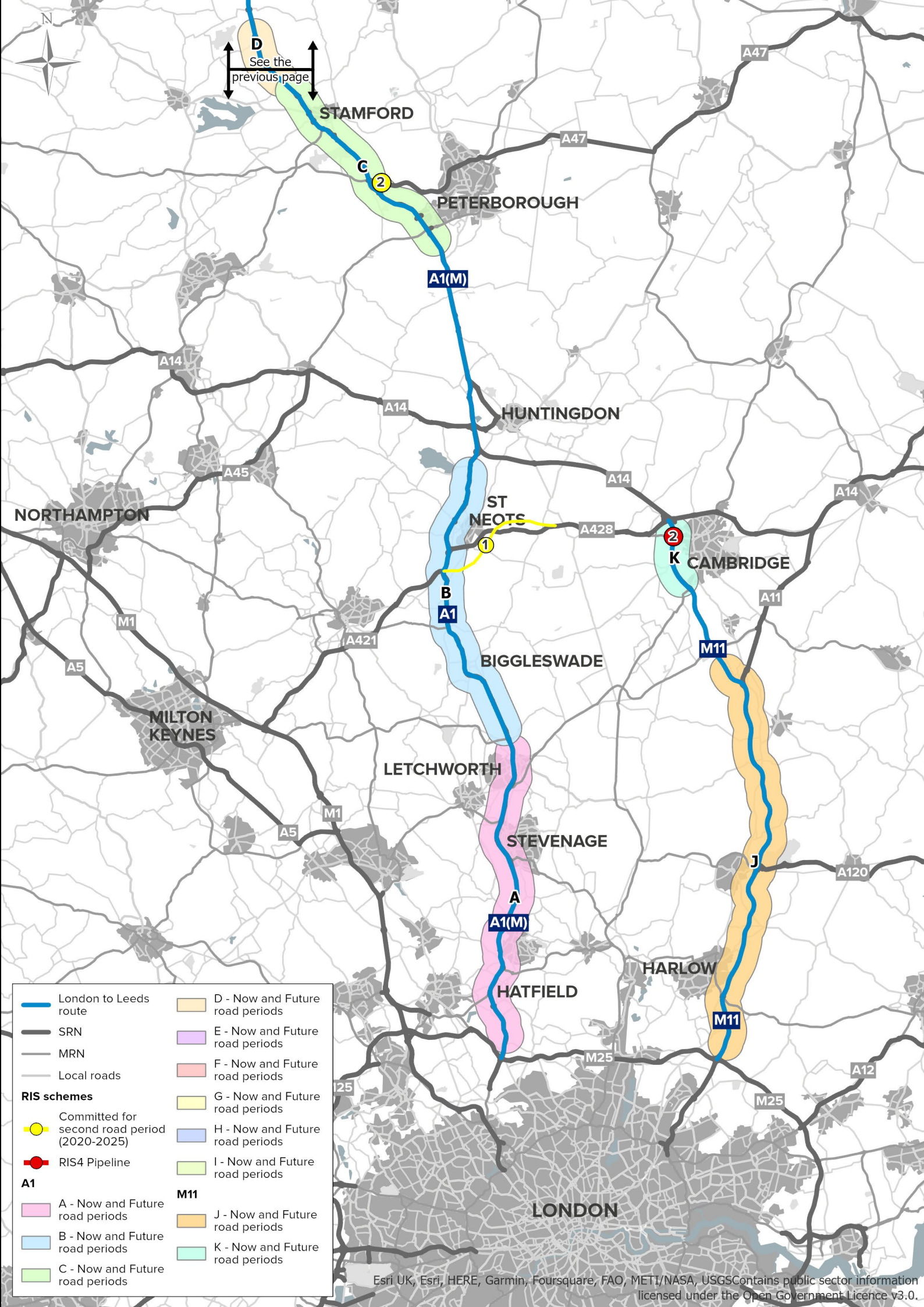
- Committed for second road period (2020-2025)
- RIS4 Pipeline

A1

- A - Now and Future road periods
- B - Now and Future road periods
- C - Now and Future road periods
- D - Now and Future road periods
- E - Now and Future road periods
- F - Now and Future road periods
- G - Now and Future road periods
- H - Now and Future road periods
- I - Now and Future road periods

M11

- J - Now and Future road periods
- K - Now and Future road periods



What happens next

08 Next steps

Our route strategies allow informed decisions to be made about our network. They have informed our *Strategic Road Network (SRN) initial report,* which sets our vision and priorities for the third road period (2025–2030) and beyond (from 2030). They are a forward planning tool for National Highways and our interested parties in their decision making, helping identify locations on our network for further consideration to inform investment opportunities, as well as to support decisions in prioritising potential solutions to enable us to continue to operate and maintain our network.

Alignment

They also align with the National Highways *Connecting the country: Our long-term strategic plan to 2050*[49] which sets out our 2050 vision for the SRN to be part of a seamlessly integrated transport system that meets our customers' needs by connecting the country safely and reliably, delivering economic prosperity, social value and a thriving environment. *Our long-term strategic plan to 2050* describes the short, medium and long-term steps to 2050 we believe are needed to make our vision a reality over successive road periods and has been informed by extensive horizon scanning, foresight analysis and engagement with key stakeholders across nine focus areas. The route objectives identified in the route strategies, which also respond to the needs of stakeholders, road users and communities, and the locations for further consideration to achieve these objectives are aligned with the 2050 vision.

Informing the next stage of planning

The route objectives and locations for further consideration will be used to inform our study programmes and consider opportunities for developing integrated and collaborative solutions with our interested parties.

The extensive engagement we have undertaken ensures feedback from our customers and neighbours is used to inform investment decisions. They will help us consider the interaction of our SRN with other transport networks, including the major road network and local roads. We also expect interested parties will use our route strategies to inform their wider investment programmes, supporting collaborative decision making.

For both the Route strategy initial overview reports and *Our long-term strategic plan to 2050*, there will be an opportunity for stakeholders, road users and communities to provide their feedback. This will be alongside DfT's separate consultation on the *SRN initial report* published at the same time.

The 20 finalised Route strategy reports and *Our long-term strategic plan to 2050* will be published by 2025, the end of the current road period (2020-2025), informing the *Strategic business plan* and *Delivery plan.*

Provide your feedback

To find out more about our route strategies and the development process, please visit our website: nationalhighways.co.uk/our-roads/our-route-strategies/

49 National Highways (2022) *Connecting the country: Our long-term strategic plan to 2050.* https://nationalhighways.co.uk/connectingthecountry

Glossary of terms

Term	Acronym	Description
Active users and active modes of transport		Active users and active modes of transport refers to walkers, cyclists and horse riders.
Air quality management area	AQMA	If a local authority identifies any locations within its boundaries where the Air Quality Objectives are not likely to be achieved, it must declare the area as an Air Quality Management Area (AQMA). The area may encompass just one or two streets, or it could be much bigger. The local authority is subsequently required to put together a plan to improve air quality in that area - a Local Air Quality Action Plan.
Area of Outstanding Natural Beauty	AONB	An area of outstanding natural beauty (AONB) is one of the classes of land protected by the Countryside and Rights of Way Act 2000 (CROW Act). It protects the land to conserve and enhance its natural beauty.
All Lane Running	ALR	All Lane Running (ALR) motorways apply controlled motorway technology, permanently converting the hard shoulder as a running lane, and feature emergency areas.
A-roads		Major roads intended to provide large-scale transport links between regional towns and cities.
Assets		National Highways assets include our infrastructure such as pavements, structures and tunnels
At-Grade Junction		An at-grade junction is a junction where two or more roads converge, diverge, meet or cross at the same height, as opposed to an interchange, which uses bridges or tunnels to separate different roads.
Average delay		Average delay is measured in seconds per vehicle mile, and is the difference between observed journey time and the journey time at speed limit. This is measured over the whole day (24hrs).
Clean Air Zone	CAZ	A clean air zone (CAZ) defines an area where targeted action is taken to improve air quality, and resources are prioritised and co-ordinated to deliver improved health benefits and support economic growth.
Collisions		The severity of a collision is based on the severity of the most severely injured casualty and is broken down into: • Slight collision: One in which at least one person is slightly injured but no person is killed or seriously injured • Serious collision: One in which at least one person is seriously injured but no person (other than a confirmed suicide) is killed • Fatal collision: A collision in which at least one person is killed
Department for Transport	DfT	Department for Transport (DfT) plan and invest in transport infrastructure to keep the UK on the move. DfT work with agencies and partners to support the transport network that helps the UK's businesses and gets people and goods travelling around the country.

Term	Acronym	Description
Design-Build-Finance-Operate arrangements	DBFO	With a design-build-finance-operate arrangement, the private party provides financing and design, then builds and operates the facility. The public partner provides funding while the project is being used or is active.
Diversionary Routes		National Highways agreed diversion routes represent the recommended routes for road users when a section of road has been closed.
Dynamic Hard Shoulder	DHS	Dynamic Hard Shoulder Running (DHS) motorways apply the controlled motorway technology and temporarily increase capacity by utilising the hard shoulder, and feature emergency areas. The hard shoulder is some of the time, but not always, used as a live running lane, with electronic signs to guide drivers when it is safe to use for live running.
Economic opportunity areas	EOAs	EOAs were developed to give us a more refined understanding of the types of priority economic growth opportunities that exist around the SRN and around the wider road and broader transport network. They are defined in terms of their common economic function and the spatial features of the location. These key growth areas are grouped by broad 'theme' (such as international gateways, multi-modal transport hubs, tourism destinations and housing locations) and their relative reliance on the SRN.
Freeport		Freeports are special areas within the UK's borders where different economic regulations apply. Freeports in England are centred around one or more air, rail, or seaport, but can extend up to 45 kilometres beyond the port(s)
Heavy Goods Vehicle	HGV	A heavy goods vehicle (HGV) is a large vehicle intended for the transportation of heavy loads.
Growth Boards		Growth Boards have been established by some counties as a joined-up way of managing local future growth and supporting economic recovery.
International connectivity		Transport connectivity of the United Kingdom with Europe and the rest of the world.
In-vehicle Technology		This can be in-car systems that typically take the form of a touchscreen or display that is mounted on the dashboard. It can be a collection of hardware and software, which can provide information, data and connectivity to infrastructure to support the customer experience. It can also be the data and technology capability to enable the operation of the car (this might be connected services, autonomous capability, parking sensors, cameras etc.). It can be any technology within a vehicle.
Levelling up		Levelling up is a moral, social and economic programme for the whole of government. It places emphasis on ensuring no community is left behind.
Local Road Network		England's road network consists of motorways, major 'A' roads, and local classified and unclassified roads. The vast majority of motorways and major 'A' roads for the strategic road network (SRN) and are managed by National Highways. All other roads are managed by local authorities and make up the local road network (LRN)

Glossary of terms

Term	Acronym	Description
Major Road Network	MRN	The major road network (MRN) is the middle tier of England's road network, comprising the busiest and most economically important local authority A-roads.
National Highways Licence		The Licence sets out the Secretary of State's statutory directions and guidance to National Highways.
Noise Action Plans		Noise action plans provide a framework to manage environmental noise and its effects. They also aim to protect quiet areas in agglomerations (large urban areas) where the noise quality is good. Noise Action Plans provide a framework for the local management of the Important Areas.
Noise Important Areas		Noise Important Areas (NIAs) for roads and railways are based upon the strategic noise maps results and are produced in line with the requirements set out in the noise action plans.
Office of Rail and Road	ORR	The Office of Rail and Road (ORR) is the independent safety and economic regulator for Britain's railways and monitor of National Highways
Park and ride		A park and ride offers parking with public transport connections that allows commuters and other people heading to city centres to leave their vehicles and transfer to bus, rail or car share for the remainder of the journey.
Platooning		Heavy Goods Vehicle (HGV) platooning is the use of technology to allow HGVs to travel safely in close proximity at speed with the driver of the lead vehicle controlling the speed, acceleration and braking of the whole 'platoon'.
Receptor (Air quality and Noise)		Location which is sensitive to noise/air quality issues
Regional Traffic Model	RTM	National Highways has a suite of five regional traffic models (RTMs) covering England's SRN. The models allow us to identify future performance and delay on the network, assisting with the development of the route strategies
Reliability		Reliability is the difference between the typical travel time, allowing for recurring delays, and the observed travel time. This measures the amount of variation due to unexpected variations or unplanned events. Like delay, it is measured in seconds per vehicle per mile. It is a concern for most drivers, but particularly affects just-in-time freight traffic and other strategic journeys.
Road investment strategy	RIS	A Road investment strategy (RIS) is a strategy that outlines a long-term programme for National Highways' motorways and major A-roads with the stable funding needed to plan ahead.
Road period		The defined period of time over which the Government gives a funding commitment. The length of a road period will be specified at the beginning of the RIS development process. Road periods will be multi-year in order to provide the supply chain with increased certainty of investment and intent. Based on current practice within the other infrastructure sectors, it is expected that road periods will continue to be five years in length, though the actual length will be decided by the Government of the day.
Route objectives		Objectives for each route, informed by engagement and analysis, to support the current and future needs of customers and neighbours.
Safe System approach		The Safe System is the current best practice safety culture in road safety, developed over many years and derived most notably from the Swedish Vision Zero and Dutch Sustainable Safety strategies. A best practice road safety culture approach based on the principles that humans make mistakes which could lead to serious injury or death for which it is a shared responsibility of the road user, road managers, vehicle manufacturers, etc. to take appropriate actions to ensure road collisions do not lead to serious or fatal injuries.

Term	Acronym	Description
Seasonal delay		Seasonal delay refers to the difference between the average afternoon peak delay for Fridays in August 2019 (high demand in summer holidays) and the average delay during very low demand periods (in this case, Christmas day is used). This measure is designed to reflect the parts of the network that do not appear to have a problem on average over the year but have seasonal peaks. Seasonal delay is of interest to tourist traffic, particularly people travelling to airports, or other destinations where arriving later than intended could have significant implications.
Severance		The separation of people from facilities and services they use within their community.
Sites of Special Scientific Interest	SSSIs	A Site of Special Scientific Interest (SSSI) is the land notified as an SSSI under the Wildlife and Countryside Act (1981), as amended. SSSI are the finest sites for wildlife and natural features in England, supporting many characteristic, rare and endangered species, habitats and natural features.
Smart motorway		A smart motorway is a section of motorway that employs active traffic management (ATM) techniques to increase capacity through the use of technology including variable speed limits. There are three types of smart motorway: 1. Controlled Motorway: variable speed limits with the hard shoulder operating as it would on a conventional motorway 2. Dynamic Hard Shoulder (DHS) Running: Variable speed limits with the hard shoulder selectively opened as a running lane during periods where traffic levels are too high for only three lanes of running traffic. When activated, vehicles can use the hard shoulder as a running lane 3. All Lane Running (ALR): variable speed limits with the hard shoulder removed and converted to a permanent running lane Smart motorways have a whole system of inter-related safety features, not present on conventional motorways, working together to help keep drivers and their passengers moving safely. The system includes: • variable speed limits to help keep traffic moving, reducing frustrating stop-start traffic and making journeys quicker • clearly signed and orange-coloured emergency areas set back from the road and with telephones linking directly to our control rooms • detection systems to monitor traffic for changes in flows • CCTV cameras that our operators are able to move and zoom to monitor and manage congestion and incidents, where notified. The system has the ability to see 100% of the carriageway • signs and signals to provide better information to drivers which can alert drivers to hazards ahead and display Red X signs to close lanes to other traffic when a stopped vehicle is identified • enforcement cameras to deter the minority who break speed limits and ignore Red X signs • radar stopped vehicle detection
Spatial planning		Spatial planning decides how land should be used or protected. It also organises, designs and makes decisions on where new homes, roads and other infrastructure should be built. Spatial planning aims to make places attractive, safe and environmentally friendly. National Highways is a statutory consultee in the planning system and we encouraged others to seek early advice from us if their development proposal is likely to impact the strategic road network.
Special Areas of Conservation	SACs	A Special Area of Conservation (SAC) is the land designated under Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.
STATS19		Data on road traffic casualties on the roads in Great Britain are collected via the STATS19 process. These statistics are collected by police forces, either through officers attending the scene of incidents, from members of the public reporting the incident in police stations after the incident, or more recently online and then validated and published annually by DfT. STATS19 road traffic collision and casualty data is published annually by DfT in the Autumn and provides details of the previous calendar year. These reports have used the data available at the time of analysis, 2015-2018.

Glossary of terms

Term	Acronym	Description
Statutory consultee		Statutory consultees are those organisations and bodies, defined by statute, which local planning authorities are legally required to consult before reaching a decision on relevant planning applications.
Strategic Rail Freight Interchange		A large multi-purpose rail freight interchange and distribution centre linked into both the rail and road system.
Strategic Road Network	SRN	The strategic road network (SRN) covers more than 4,500 miles of motorways and major A-roads.
Strategic Traffic / Strategic journeys		Long distance traffic / journeys
Sub-national Transport Bodies	STBs	Sub-national Transport Bodies (STBs) have a key role in formulating transport strategy and identifying investment priorities at the sub-national level, including for highways. There are seven STBs in England, which are tasked with developing transport strategies and studies for their region. Through the development of their evidence bases with their constituent local authorities and Local Enterprise Partnerships, their work highlights multi-modal issues, need and opportunities, with investment priorities provided to the Secretary of State for Transport.
Transport-related social exclusion		Where limited access to transport or other issues with the transport system means that people cannot fully participate in society in the way they would like
Trunking / De-trunking		De-trunking is the process of returning a National Highways road to the local highway authority control and vice versa for trunking
UNESCO World Heritage Site		Inscription as a UNESCO World Heritage Site is an acknowledgement of the global significance of such places.
Union connectivity		Transport connectivity between the nations of the United Kingdom.
Variable Messaging Signs		The Traffic Signs Regulations and General Directions 2016 (TSRGD) define a variable message sign as a device "...capable of displaying, at different times, two or more aspects...". These aspects may take the form of a sign prescribed by the TSRGD, a legend in accordance with Schedule 16 to TSRGD, a non-prescribed temporary sign or a blank grey or blank black face. Thus, the expression "variable message sign" (VMS) encompasses all types of variable sign from simple flap-type signs to complex light-emitting panels
Vulnerable Road User		Walkers, cyclists and horse riders

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